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City of Belvedere

GENERAL PLAN

February 1988



**CITY OF BELVEDERE**  
**GENERAL PLAN**

February 1988



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## TABLE OF CONTENTS

	PAGE
LIST OF TABLES	iv
I. INTRODUCTION AND GENERAL OBJECTIVE	1
II. LAND USE ELEMENT	2
A. SETTING	2
1. POPULATION	2
2. RESIDENTIAL LAND USE	3
3. COMMERCIAL AND INDUSTRIAL USE	4
4. RECREATIONAL/OPEN SPACE USES	4
5. COMMUNITY/PUBLIC FACILITIES	5
6. EDUCATIONAL USES	5
B. ISSUES	6
C. POLICIES	6
III. CIRCULATION	10
A. SETTING	10
1. AUTOMOBILE CIRCULATION	10
2. PARKING	11
3. PUBLIC TRANSIT	12
4. PEDESTRIAN WAYS	12
B. POLICIES	12
IV. HOUSING	14
A. SETTING	15
1. POPULATION AND HOUSING CHARACTERISTICS	15
2. UNDEVELOPED SITE ANALYSIS	17
3. HOUSING NEEDS	20
B. CONSTRAINTS TO DEVELOPMENT	22
1. MARKET CONSTRAINTS	22
2. GOVERNMENTAL CONSTRAINTS	24
3. OTHER CONSTRAINTS	25
C. OTHER CONSIDERATIONS	26
1. ENERGY CONSERVATION	26
2. PUBLIC PARTICIPATION	26
3. CONSISTENCY WITH THE GENERAL PLAN	27



D.	GOALS, POLICIES, AND OBJECTIVES	27
1.	GOALS	27
2.	HOUSING POLICIES AND OBJECTIVES	27
E.	HOUSING PROGRAMS (1980-1985 & 1985-1990)	29
1.	EXISTING PROGRAMS	29
2.	PROPOSED PROGRAMS	31
3.	BELVEDERE'S FIVE YEAR (1985-1990) HOUSING PROGRAM	32
F.	QUANTIFIED HOUSING OBJECTIVES: (1990)	33
V.	OPEN SPACE, SCENIC ROUTES, CONSERVATION	35
A.	SETTING	35
1.	ENVIRONMENTAL QUALITY-EXISTING ENVIRONMENT	35
2.	EXISTING OPEN SPACE	35
B.	OPEN SPACE PLAN	37
C.	POLICIES	38
VI.	ENVIRONMENTAL HAZARDS	40
A.	BACKGROUND	40
1.	PURPOSE	40
B.	SETTING	42
1.	GEOLOGY	42
2.	SLOPE STABILITY	42
3.	SEISMIC RISKS	42
4.	FIRE HAZARDS	43
5.	EMERGENCY ACCESS	44
6.	FLOODING	44
C.	POLICIES AND OBJECTIVES	44
D.	IMPLEMENTATION	46





VII. NOISE	48
A. SETTING	48
1. SOURCES	48
2. DEFINITION OF TERMS	48
3. NOISE IN BELVEDERE	48
B. POLICIES	50
VIII. GENERAL PLAN SUMMARY	51
TECHNICAL APPENDIX: Environmental Hazards	
EXHIBITS	
1. EXISTING LAND USE MAP	
2. FUTURE LAND USE MAP	
3. CIRCULATION/OPEN SPACE MAP	
GENERAL PLAN STUDY ROSTER	



## LIST OF TABLES

No.		Page
LU-1	Existing Land Uses	4
H-1	Rental Range - 1984	16
H-2	Summary of Undeveloped Sites	17
H-3	Undeveloped Residential Sites in Belvedere	18
H-4	Program Summary	30
H-5	Low Income Households Benefitting from City Programs: Existing and Projected	33
H-6	Quantified Housing Objectives for 1990	34
N-1	Noise Levels in Belvedere	49





## I. INTRODUCTION AND GENERAL OBJECTIVE

The Belvedere General Plan provides the City with an integrated guide to decision making now and in the future. It seeks to deal with matters important to the City as it approaches full development, at levels appropriate to community concerns.

The plan recognizes that Belvedere is part of the Tiburon Peninsula, Richardson Bay communities, and Marin County. It identifies areas where cooperation and participation can assist the City in achieving its own objectives.

Major policy recommendations from the 1975 Belvedere General Plan are included where they are relevant to current needs. Additionally, the 1984 update of the Housing Element has been retained with minor modifications, and other policies which have been adopted since 1975 have been incorporated. Since there is almost no vacant land, it may appear that change occurs very slowly in Belvedere. But changes in the ways residents use and desire to use their properties alter the fabric of the community, and increasing economic pressures have resulted in subtle changes to the character of the City. Further, significant changes to municipal financial conditions caused by the passage of Proposition 13 in 1978 and by later, similar legislation have altered the City's capital improvement programs and redirected some City goals. Passage of special tax override measures by the residents of Belvedere have permitted the City to reinstate street and drainage repair programs.

It is the overall objective of the Belvedere General Plan to preserve the character of Belvedere, to monitor development, and to insure that new construction, renovation, and remodeling does not damage the sensitive environment and stress the limited infrastructure of the City of Belvedere.

The Belvedere General Plan is designed for a five-year target period with provision for review at the end of that period to insure that the City's goals reflect the needs and desires of the community.



## II. LAND USE ELEMENT

Belvedere is a community embracing two island promontories at the southwestern tip of the Tiburon Peninsula and a lagoon-landfill area linking the islands to the mainland. From the islands, there are sweeping marine views of the surrounding bay area. Within the landfilled area, there are views of and direct access to the more intimate lagoon. Fine weather complements community assets -- since among the marine micro-climates of the Bay area, the weather generally has more sun and less fog than that of its neighbors. With these environmental qualities, Belvedere has looked inviting to Bay Area residents for over 90 years, and has become one of the most desirable and attractive residential communities of the Bay Area.

Many of the permanent early Belvedere homes -- from around the time of the turn of the century -- were built above Belvedere Cove for summer and leisure use. Some early residents anchored arks or houseboats in Belvedere Cove during the summer and wintered in the sheltered lagoon behind Beach Road. Subsequent development occurred in the area around Laurel Avenue, followed by Corinthian Island and the western side of the island. In the 1950s and 1960s, San Rafael Avenue and the areas of the Lagoon, North Point, and West Shore were built, followed by apartments along Beach Road. Current development consists of remodeling and enlarging existing residences, and the construction of individual residences on the islands' scattered undeveloped lots, of which less than 30 remain. There have been some new lots created as old, large estates have been divided. The high prices of land and homes in Belvedere have also contributed to the pressure to divide these remaining large lots. Many of the remaining undeveloped lots are very steep and may have geologic problems associated with their development. As a consequence, in 1985 the City passed a Grading and Erosion Control Ordinance to permit detailed geotechnical review of these situations.

### A. SETTING

#### 1. Population

In 1980, the U.S. Census showed the City with a population of 2,401 people and 993 dwelling units. This indicates a household size of 2.69 people per household, somewhat higher than the County average but reflective of the large homes found in Belvedere. Projections prepared by ABAG in 1985 indicate a population of 2400 and a total number of housing units of 993. City records indicate that between 1980 and 1985 a total of six housing units were constructed. Belvedere is a city nearing the building capacity of its land. The city's growth curve is typical of a community approaching full development: 24% of its units were built during the 50 year period prior to 1940; growth





peaked in the post World War II period during the 1950s when almost half of the city's houses were built (at an average of 45 units per year); growth dropped to 20 units per year in the 1960s and to 5 per year in the early 1970s. In the 1975 to 1986 period, a total of eleven homes were built, according to City records.

## 2. Residential Land Use

Belvedere is clearly a predominantly residential rather than a "balanced" community, with well over 90% of its land area either in residential use or zoned residential. Nearly all employment needs, and most residential service needs, are met outside Belvedere. There are three distinct residential areas of the community.

The Lagoon area consists of about 275 small- to moderate- sized lots, ranging from around 5,000 to 12,000 square feet in size. They contain predominantly one and two story homes, which were mainly built in the 1950s and 1960s. Most of the lots in this area front on the waters of the Belvedere Lagoon, an artificial lagoon created by diking off portions of San Francisco Bay. Tide gates control the flow of water between the Lagoon and the Bay. Some of this area may be subject to flooding during severe high intensity storms.

Corinthian Island is a small natural island, about half of which is within the City of Belvedere and half within Tiburon. Lots on Corinthian Island are in general very small, and the homes are generally a mixture of both old and new. The streets are very narrow and slopes are very steep. There are 55 developed parcels, and one undeveloped lot which is large enough to permit development of a new home.

Belvedere Island is the oldest historical section of Belvedere and contains about 510 lots. Most of the land was originally subdivided by the Belvedere Land Company during the late 1800s and early 1900s. Homes built from that time to the present have been constructed on lots ranging in size from less than 5,000 square feet to over one acre in size. The island is characterized by a variety of architectural styles and sizes of homes, as well as by its dense, mature vegetation and narrow, winding streets.

In addition to these three main areas of single family housing, there are sections along lower Beach Road and San Rafael Avenue which accommodate multi-family housing. There were 158 such units in 1980, and four units have been built between 1980 and 1985.

The three single family residential areas comprise 273.7 acres of land, 20.35% of the total area of the City. The remaining land



areas include almost 13 acres of land allocated to multi-family residential development (0.9% of area), which is concentrated along Beach Road and Community Road, 2.6 acres (.2% of the area) of commercially zoned property adjacent to downtown Tiburon, and 17.48 acres of land in public and quasi-public uses including churches, City Hall, and the parks and open space lands, as listed in Table LU-1 below. Water area is 1,030.38 acres, 76.6% of the total area of the City of Belvedere.

TABLE LU-1: EXISTING LAND USES -- CITY OF BELVEDERE -- 1987

<u>Use</u>	<u>Acres</u>	<u>% of Total</u>
Single Family Residential	273.70	20.3
Multi-Family Residential	12.74	0.9
Offices/Commercial	2.60	0.2
Public Facilities	0.72	> 0.1
Churches & Schools	1.88	0.1
Public Parks/Recreation	6.11	0.5
Private Recreational	1.11	0.1
Open Space	7.66	0.6
Undeveloped	8.34	0.7
	-----	-----
Total Land Area	314.86	23.4
Water Area	1030.38	76.6
	-----	-----
TOTAL	1345.24	100.0%

### 3. Commercial and Industrial Uses

Many residents take the bus, ferry, or a car to San Francisco or other Marin County jobs. The employment base within the community is very small; a few offices, retail businesses, a branch bank, two yacht clubs, and occasional construction activities supply most intown jobs.

Commercial uses within the City consist of the portion of the Boardwalk shopping area which lies within the City boundary and the office spaces found along Beach Road near the San Francisco Yacht Club. Therefore, most neighborhood shopping and services needs are met in the other shopping areas of the Tiburon Peninsula: in downtown Tiburon, the Cove shopping center, or at Strawberry Village. No industrial uses are permitted within the City.

### 4. Recreational/Open Space Uses

Most of the recreational uses are related to San Francisco Bay. There are two major yacht clubs and the Belvedere Sailing Society. For parks, the City has the Community park adjacent to





City Hall (which has a small active play space and children's play facilities), the park in Beach Road opposite the San Francisco Yacht Club, Lagoon Road Park, Cove Beach, and the San Rafael Avenue walkway along the shoreline of Richardson Bay. Private open space -- yards adjacent to most houses -- takes care of most small-scale play and open space needs. Two private recreation clubs in Tiburon with swimming pools, tennis courts, and club house facilities, are used by many Belvedere residents for active play. Additionally, the Joint Belvedere-Tiburon Recreation Committee operates six tennis courts: two at Lagoon Road Park, two at Point Tiburon, and two at Del Mar School in Tiburon.

Other active and passive play needs, such as those frequently met in communities by playgrounds, playfields, and neighborhood or community parks ranging in size from three to ten acres, are available in public or private facilities in neighboring Tiburon. Opportunities for expansion of recreation facilities in Belvedere are few. Lagoon Road Park was developed in 1978; the San Rafael Avenue seawall, with its walking path extending to the Richardson Bay Lineal Park Multi-Use Path, was completed in 1985. The City also owns open space along Beach Road where it fronts on the Bay in Belvedere Cove. A system of walking pathways and lanes also exists, and a study is being done to determine which of these can be upgraded to provide for recreational walking.

## 5. Community/Public Facilities

Among the city's community facilities, there are two churches, and a City Hall and Community Center, as well as the City's Corporation Yard. The City owns its own sewerage system and contracts for maintenance and waste disposal with Tiburon Sanitary District No. 5. Water is supplied by the Marin Municipal Water District. Both systems are capable of handling the expected small amount of additional growth. Additional Community Center facilities are proposed for the lower floor of the present City Hall.

## 6. Educational Uses

There was one elementary school -- Belvedere School -- in the city. It housed two elementary grades of the Reed Union School District, but declining enrollments since 1975 caused the closure of this school. The School District then sold the property to the Belvedere Land Company, which plans to redevelop the site for housing. The only other school facility in the community is a nursery school on Cove Road Place. Elementary students now attend Reed School, Bel Aire School, or Del Mar School in Tiburon; high school students go to Redwood High School in Larkspur or attend private schools.



## B. ISSUES

Since 1970, increasing land values and taxes have had an adverse impact on development in Belvedere. Buildings disproportionate to lot size have been proposed, and some have been built. Some large lots have been subdivided and sold off to defray high taxes and provide income. The lack of density regulations in the residential zones have raised fears of inharmonious development. In 1970, then existing regulations were deemed inadequate to meet the current pressures, and, in 1971, Belvedere undertook a planning study with the firm of Livingston-Blaney to address the city's land use concerns. The resulting report, "The Belvedere Planning Study," documented the issues raised, made policy recommendations, and suggested means for implementation. After the study was completed, the City implemented most of the recommendations through a major revision of the Zoning Ordinance, completed in 1973. In 1975 the Belvedere General Plan was adopted, and in 1980/1981 several members of the Planning Commission and City Council undertook further revisions to the Zoning Ordinance. The City has not significantly changed its General Plan since 1975, with the exception of bringing the Housing Element into conformance with newly adopted State requirements in 1981 and again in 1984.

Exhibit 1 is a map showing Existing Land Use. Table LU-1 on page 4 shows the present land uses in the City of Belvedere.

## C. POLICIES

1. Significant new development is discouraged. Building is permitted only on existing legal lots of record or new lots of legal size for the residential zone in which they lie.
2. Residential densities shall be controlled to preserve the character of Belvedere. The two single family zones -- R-15, requiring 15,000 sq. ft. of lot area per unit, and R-1, requiring 7,500 square feet of lot area per unit -- are retained. Additional density regulations, based upon floor areas, setbacks, slope, and environmental considerations, should be studied for inclusion in the Zoning and Subdivision Ordinances.
3. New construction is to be in harmony with existing development. To ensure reasonable intensity of lot use, ensure high environmental quality, and maintain the density and character of the neighborhoods, the City has design review standards in addition to controls on height, bulk, floor areas, and setbacks.





4. The circulation system is to be retained essentially as is, with no improvements planned beyond those needed to remove safety hazards.
5. Opportunities to expand the supply of moderate income housing in response to needs of the current population are to be explored and implemented. The Belvedere School site and the nursery school site were identified in 1975 as potential sites for this use, although neither is now available. However, a site adjoining the Christian Science Church on San Rafael Avenue has become available, and is zoned R-3 with the Senior Citizen-Handicapped overlay district to allow for moderate income housing. Further, a second unit ordinance was adopted in 1981 allowing for up to 50 such units; all of these units had been allocated as of 1987. Whether or not additional units should be permitted above the original 50 units should be the subject of further study by the Planning Commission and City Council.
6. The open water surrounding Belvedere is to be kept open in perpetuity. In 1984 the City adopted the Richardson Bay Special Area Plan, along with the other three cities and the County of Marin which adjoin the Bay. This Plan provides for a vessel-sewage no-discharge area to be created in Richardson Bay, and for changes to the anchorage regulations in the Bay and in Belvedere Cove which will help to eliminate the random anchoring of boats throughout the Bay. The City incorporates the policies of the Richardson Bay Special Area Plan (RBSAP) into its General Plan.
7. A desirable feature of every Belvedere home should be usable outdoor open space. Minimum usable outdoor living space standards were incorporated into zoning and building regulations for the multi-family zones. Additional regulations on floor area ratio and lot coverage should be considered for inclusion in the single family residential zones.
8. Views of the Bay, San Francisco, and the mountains are to be retained wherever possible. The 1981 revisions to the Zoning Ordinance incorporated provisions for the dedication of a view site or easement.
9. Present density standards (and existing densities) are as follows:
  - a. R-1 zone: 2.5 to 5 dwelling units per gross acre.  
6.75 to 13.5 persons per acre.



- b. R-15 zone: 1 to 2.5 dwelling units per gross acre.  
2.7 to 6.75 persons per acre.  
(Small lots in this zone raise the current density range to 1-3.0 d.u. per gross acre.)
  - c. R-2 zone: 5 to 14.5 dwelling units per gross acre.  
13.5 to 39 persons per acre.
  - d. R-3/R-3C 5 to 20 dwelling units per gross acre.  
zones: 13.5 to 54 persons per acre.
  - e. R-3/SC-H Same as R-3, except density may be  
overlay: increased upon Planning Commission's findings of benefit to the community and lack of environmental impact.
  - f. C-1 Floor Area Ratio not in excess of 1:1.  
Not over 50% of lot covered.  
Minimum lot of 5,000 square feet.
10. Based on the seismic and geologic study in which the City participated with the County in 1975, additional regulations have been added to the City's code requiring special geologic studies prior to any development of sites in hazard areas. Further studies may also show some small areas within existing residential zones which should not be developed for reasons of safety.
  11. Definition and relocation of the City limit lines between Belvedere and Tiburon has been under discussion with the intent to solve the remaining problems. Negotiations include the line through the Boardwalk Shopping Center, and resolution of the boundary of the Corinthian Yacht Club which has its clubhouse in Belvedere and its berths and parking area in Tiburon.
  12. Opportunities to provide additional recreational facilities in Belvedere should be explored and encouraged. In particular, the existing lane and path system was surveyed in a 1986 study. (See Circulation Element).
  13. A study of all remaining properties capable of being subdivided under present regulations should be undertaken with an analysis of the potential for additional development, geologic hazards, environmental impact, and other factors. If necessary, the zoning regulations and Subdivision Ordinance should be amended to change the conditions under which existing large lots may be divided and the amount of development to be



permitted on such over-size lots.

14. Due to the close proximity of many homes in the Lagoon area, and the issues of privacy which this raises, consideration should be given to determining the feasibility of restricting the amount of second story building which can occur on each lot in the Lagoon area.
15. The City should revise its Zoning and Design Review Ordinances to reflect the results of the above studies and other concerns of the community, and to give the Planning Commission and City Council more specific standards by which to review proposed building projects.





### III. CIRCULATION

The Circulation Element is designed to offer a balanced circulation system which will promote public health, welfare, and safety, as well as preserve and enhance the quality of the community's environment. Underlying the preparation of transportation proposals for Belvedere is the City's long-standing policy that there will be no substantial change in the current road network.

#### A. SETTING

##### 1. Automobile Circulation

The auto circulation system in Belvedere consists of 10.5 miles of roads and represents a "full development" of the very simple road system. Tiburon Boulevard, a state highway, serves the city as its major arterial street providing inter- and intra-County access. San Rafael Avenue, upper and lower Beach Road, Belvedere Avenue, West Shore Road, and Golden Gate Avenue form a secondary loop. Bella Vista, Fern (between Madrona and Oak), Laurel, and Oak Avenues act as central collectors. Most of the streets are interconnected so there is a two-way access to most residences. (See Exhibit 3.)

Among suburban cities, Belvedere has a street system which shows singular regard for topographic and environmental conditions and disregard for auto movement. Most of Belvedere's streets are narrow and curving -- in many places so narrow only one car can pass at a time, while another waits in one of the "pull out" positions provided along its length. Many also have substantial grades. Interestingly, most streets were located on the steep terrain of the island, leaving more level ground for building sites. Road widening is not only infeasible but nearly impossible -- even if the community wished to do it.

From one point of view, the narrow curving streets are a community asset, reducing the amount and speed of traffic, reducing noise and pollution, and creating an atmosphere in which cyclists and pedestrians can feel relatively safe.

But Belvedere's streets function at a minimal level: they provide access to and from housing for residents and for service vehicles and they serve as access for emergency vehicles in the event of need. However, the streets can easily be blocked in some places by a stalled vehicle or an illegally parked car. Enforcement of parking laws, removal of illegally parked cars and other vehicles, and a continuing emphasis on requiring residents who wish to add to their homes to provide the necessary off-street parking is required to allow the streets to function safely for all. (See "Community Safety") Modification of



Belvedere's narrow streets to improve sight distances and to create additional on-street parking will improve the safety of the streets for drivers and pedestrians.

Whatever the point of view, the streets do substantially affect the number of trips each household in Belvedere makes each day. While most suburban communities generate between 8 and 10 trips per house each day, Belvedere households, according to a 1974 traffic count done by Marin County, generate only 3 trips per day. Counts taken by the Town of Tiburon in late 1985 indicate that average daily traffic on San Rafael Avenue, at its intersection with Tiburon Blvd., is about 1,900 cars per day; at Beach Road, south of Tiburon Blvd., traffic is about 2,150 cars per day. Given Belvedere's approximately 1,000 residential units, the traffic on these two streets alone equals almost 4 trips per household per day. Additionally, there is some traffic which does not pass either of these intersections, and some traffic (such as on Beach Road) which does not enter Belvedere at all (coming from Main Street in Tiburon). Therefore, it is probably correct to state that the average daily traffic in the City is probably now closer to the 8 to 10 trips per day per home found in most suburban communities.

A small increment of growth is anticipated in Belvedere, which will generate a corresponding increase in traffic on a system already near capacity.

## 2. Parking

Belvedere and Corinthian Islands' narrow streets and steep hillsides contribute to a severe parking problem. Most of the remaining undeveloped sites are very steep, and providing the required two parking spaces per unit is difficult. Many of the older houses do not have any off-street parking. On-street parking on Belvedere and Corinthian Islands is very limited and road widths do not allow any additional on-street parking in most places. The City should make every effort to require parking for all new homes, as well as upgrading parking for homes when remodeling is approved. The Zoning Ordinance should be amended to require conformance with parking requirements as a condition of design review approval. Where possible, additional roadside parking should be created. The City should also require that adequate off-street parking be created when homes are remodeled or constructed, and that such parking be kept available for cars and not used (as are many garages) for storage and workshop space.

In the Belvedere Lagoon area, streets are wide enough to provide adequate on-street parking, and virtually all of the homes have off street garages or carports. However, commuter parking by ferry and bus riders has become a significant nuisance on Lagoon,





Cove and Beach Roads, and some parking regulations such as preferential parking decals and limited time parking have been implemented to alleviate these problems.

### 3. Public Transit

The Golden Gate Transit District provides Belvedere with inter-city bus service, primarily to San Francisco and other parts of Marin County. During commuting hours only, buses run along San Rafael Avenue and lower Beach Road. Non-peak hour bus service is confined to Tiburon Boulevard. Supplementing bus service to San Francisco are three popular ferry runs between Tiburon and San Francisco per commute time, both in the morning and evening. There is no intra-city bus service within Belvedere.

### 4. Pedestrian Ways

Several walks and lanes exist to serve Belvedere pedestrians. Walks follow the contours of the land; lanes ascend or descend Belvedere and Corinthian Islands. Some are remnants of the times when walking was a more popular activity in Belvedere and are now in disuse, but all are increasingly important as alternatives to auto use. Lanes are being improved and kept in usable condition. A 1986 survey of Belvedere's lanes and paths indicated that the following lanes were in use and were being maintained:

Albert's Alley, Corinthian Lane, Corinthian Steps, McLean Lane, Pagoda Lane, Woodland Lane, Cedar Lane, Hawthorne Lane, Pomander Walk, Transpac Lane, Harry B. Allen Lane, and Woodwardia Lane.

The following lanes were not in use in 1986 because of their need for major improvements to make them usable:

Cliff Lane, Lanes U-1, U-2, U-3, U-4, U-5, U-6, U-7, U-8, U-10, Eucalyptus Lane, U-11 and U-12. (Unnamed lanes are shown on old maps, and on a 1986 survey of unimproved and unmaintained lanes.)

## B. POLICIES

1. City policy to keep the present road network intact, as shown on the Circulation Map, should be continued. The City should conduct traffic studies as needed to address safety considerations for all of Belvedere's streets. Improvements to streets should be designed to improve the safety, sight distance, and parking conditions of the streets rather than to increase their capacity. Pedestrian circulation and safety should be an important consideration in determining what street improvements are made. Sidewalks should be encouraged.



2. Traffic generated by construction activities, tourists, and special events (such as Opening Day, fireworks displays in the Bay, etc.) should be discouraged from using Belvedere's street system. Alternatives for construction traffic should be studied, and specific regulations about such traffic and the parking of construction vehicles should be implemented.
3. As required by ordinance, off-street parking is to be created and maintained through the planning approval. The City shall encourage residents to provide additional off-street parking and shall require that the parking requirements of the Zoning Ordinance are met. Further, the City should require that the off-street parking spaces be continuously available for the parking of cars and not used for non-parking use, such as storage or workshop space. Tandem parking (end-to-end spaces) shall not be considered to fulfill the requirements for more than one of the required parking spaces. The City shall also encourage the creation of additional on-street parking where it is possible to do so, either within the right-of-way or partially on private properties.
4. Alternatives to the use of private cars should be explored jointly with Tiburon and/or the County for feasibility in Belvedere. The purpose would be to serve intra-city and intra-Tiburon Peninsula transit needs, including pickup and drop off at key transit exchange points such as the ferry and Alto Wye. The development of a local taxi system for the Tiburon Peninsula should be encouraged.
5. The pedestrian system of lanes and paths should be upgraded. West Shore Grade should be temporarily improved to provide for safe pedestrian use until it can be restored to full vehicle service.
6. The City should maintain all roads within the existing system in full service condition. If roads are damaged by slides or other disasters, they should be restored to full service as soon as possible. Two means of ingress and egress should be provided for every residence, except for very short cul-de-sacs.



#### IV. HOUSING

The Housing Element, required under state law, consists of standards and plans for the improvement of housing, providing for adequate sites for housing, and containing "adequate provision for all economic segments of the community."

These goals have been specifically identified by the state:

1. To promote and insure the provision of adequate housing for all persons regardless of income, age, race, or ethnic background.
2. To promote and insure the provision of housing selection by location, type, price, and tenure.
3. To promote and insure open and free choice of housing for all.
4. To act as a guide for municipal decisions and how these decisions affect the quality of the housing stock and inventory.

Within this general framework, the housing element of a community needs to be viewed in the context of its housing market area since many housing problems are area-wide or regional in nature and require interjurisdictional solutions. Thus, communities are urged to review their housing elements in the context of their county's housing element and the Association of Bay Area Government's (ABAG) regional housing studies.

Belvedere, incorporated in 1897, is an old, established community. With a 1985 housing stock of 995 dwelling units, it represents a small, mostly developed portion of the much larger housing market area of the Richardson Bay communities: Belvedere, Tiburon, Sausalito, Marin City, Mill Valley, and Strawberry. The Richardson Bay communities in turn are part of Marin County's housing market.

The Housing Element was previously revised in compliance with State law (AB 2853, effective October 1, 1981) and was again updated as of July 1, 1984.

The Legislature has declared that housing is of vital statewide importance. The early attainment of the high priority goal of decent housing and a suitable living environment for Californians requires the cooperation of all levels of government and the private sector. Especially important is the provision of housing affordable to low- and moderate- income households. Each city also has the responsibility to consider local economic, environmental, and fiscal factors, as well as community goals, when it addresses its housing needs.





This Housing Element is intended to guide Belvedere's housing policies and programs and their relationship to regional housing goals and activities to promote and ensure the provision of:

1. Adequate housing for all persons regardless of income, age, race, sex, marital status, ethnic background, or other arbitrary factors.
2. Housing selection by location, type, price, and tenure.
3. A balanced residential environment with access to employment opportunities, community facilities, and adequate services.

Included in this Housing Element are the following:

1. Identification of housing needs, resources, and constraints including demographic and housing characteristics data.
2. Policies, goals, and quantitative objectives to maintain, improve, and develop housing.
3. A housing program for the next two years (1988 - 1990).

#### A. SETTING

##### 1. Population and Housing Characteristics

A summary of population and housing data pertinent to the development of Belvedere's Housing Element follows.

- Belvedere has the highest population density, in terms of persons per square mile of land area, of any city or town in Marin County. With one half square mile of land, excluding underwater bay and lagoon property, and a 1980 population of 2,401, the City has a density of 4,802 persons per square mile.

- From 1970 to 1980, Belvedere experienced a population decrease of 198 persons, yet an increase of 51 in the number of households. This is partially the result of households with two or more persons leaving Belvedere and households with one person moving into the community. It also reflects reduction in family size due to children growing up and leaving home and divorced and widowed persons remaining in Belvedere as one-person households. Belvedere's population is projected by ABAG to continue to decrease to 2,300 persons by the year 2000.

- In 1970, 13.8% of the population was over 62 years of age; in 1980, 16.3% of the population was over 62 years of age.

- In 1980, 109 (11.5%) households had incomes of less than \$10,000. Belvedere, with a median income of \$46,089 per



household, was among the highest median income communities in California. In 1983, the Census Bureau reported Belvedere had the third highest per capita income in California at \$33,870.

- The 1980 Census reported 993 dwelling units in Belvedere.
- The 1980 Census indicated that rental stock comprised 24% of the total housing stock. This figure does not appear to include the 50 registered second units; some of which are currently rented, and the remainder of which have the potential to be rented.
- Approximately 53% of the apartment, duplex, townhouse, and rental second units in Belvedere are occupied by one-person households, and 41% are occupied by two-person households (based on a survey).
- Of 22 second unit tenants surveyed in May of 1981, 13 (59%) were low-income residents; six of these were paying more than 25% of their income for rent.
- A 1984 survey of 154 rental units located in the multi-family residential area of the City indicated that the following average monthly rents are charged:

TABLE H-1 RENTAL RANGE - 1984

	<u>Average:</u>	<u>Range:</u>
1 bedroom	\$525	\$350-695
2 bedroom	\$650	\$420-905
3 bedroom	\$900	\$555-1210
4+ bedroom	\$1225	\$1170-1275

- Since 1970, 30 housing units have been built in Belvedere. Twenty of these were built by 1974. Two dwellings were removed in 1980 and one in 1982. From 1985 through 1987, a total of four new homes and four condominium units were constructed. Four new single family residences and fifteen new condominium/apartment units were either in the approval process or under construction as of late-1987.

- Average sale prices of single family dwellings have changed from \$80,350 in 1970 to \$317,561 in 1980, \$531,375 in 1981, \$625,833 in 1982, \$652,636 in 1983, and \$578,277 in 1986 -- the fourth highest in the nation.

- A cursory look at the exterior of Belvedere homes indicates that few, if any, can be classified as deteriorated. With homes selling at high prices, poor housing conditions are not a problem in Belvedere. A recent survey of 41 registered second units found only 15% in need of some repairs (primarily electrical





modernization). Three owner occupied units lacked complete indoor plumbing according to the 1980 Census.

## 2. Undeveloped Site Analysis

### a. Undeveloped Sites Inventory:

As of February 1988 there were 22 undeveloped sites comprising 9.39 acres with the development potential of 31 to 34 units. The Belvedere School site has recently been rezoned to R-3 and approved for two detached and four condominium units, and the four units on Cove Road Place have been constructed. The R-3 site at 515 San Rafael Avenue, next to the Christian Science Church, has been rezoned with the Senior Citizen-Handicapped overlay zone; 11 units are now approved for construction. Homes have been constructed on four other undeveloped sites. One home has been demolished. Minor subdivision maps have created one new lot, and one three-lot subdivision was reverted to two lots by a court ruling. There may be some additional lots containing homes which are subdividable. Table H-2 summarizes the undeveloped sites, and Table H-3 details them individually.

Table H-2 Summary of Undeveloped Sites

<u>No. of Parcels</u>	<u>Zoning</u>	<u>Total Acres</u>	<u>Potential Units</u>
1	R-3	0.29	11
20	R-15	8.90	19-22
1	R-1	0.20	1

This Housing Element describes a number of constraints which limit the developability of these sites. Virtually all of the sites available have slopes in excess of 35%. Since 1982, severe winter storms have raised questions about the stability of some sites; and construction costs are very high. The Land Use Element recommends that all undeveloped and/or dividable sites be studied to determine the suitability of additional development.

### b. Non-Residential Land Inventory:

There is a small amount of non-residential land supporting uses which are well established and intrinsic to the character of the community or essential to support and service the residential sector. Non-residential uses include two churches, two parks, the City Hall and Community Center, two yacht clubs, and 1.88 acres of commercial land.



Table H-3

Undeveloped Residential Sites in Belvedere

<u>Parcel #</u>	<u>Size in Acres</u>	<u>Potential Units<sup>1</sup></u>	<u>Address</u>
1. <u>R-3 Zone</u>			
-60-091-12	.29	11 approved	515 San Rafael
	-----	-----	
	.29 Ac.	11 units	
2. <u>R-15 Zone</u>			
-60-121-18	.93	1-2	Pelican Point Road
-60-143-22	.43	1	9 Crest
-60-155-21/23	.34	2	20 Laurel
-60-201-11	.52	1	48 Cliff Rd.
-60-181-06/08	.84	2	Next to 135 Belvedere
-60-241-31	.51	1	Between 344 & 350 Beach
-60-181-28/29	1.00	2	111 and 117 Belvedere
-60-213-09	.24	1	Between 250 & 266 Beach
-60-223-18	.14	1	425 Bella Vista
-60-212-05	.11	1	304 Bella Vista
-60-221-14,19,40	2.19	2-4	401-419 Belvedere
-60-231-03	.60	1	next to 443 Belvedere
-60-112-03	.22	1	across from 11 Tamalpais
-60-163-04	.35	1	Next to 20 Crest
-60-121-04	.48	1	Betw. 2 & 6 Pelican Pt.
	8.90	19 to 22 units	
3. <u>R-1 Zone</u>			
-60-105-78	.20	1	above Corinthian Yacht Club
	-----	-----	
	.20 Ac.	1 unit	
	-----	-----	
TOTAL	9.39 Ac.	31 to 34 units	

-----  
 1. This listing of Potential Units in no way assumes that such units will be approved by the City for future development.



### c. Redevelopment:

The Housing Element adopted in September of 1981 cited the Pacific Telephone building site and the Belvedere School site as possible locations for low/moderate income housing. The City established a special use zone entitled "Senior Citizen and Handicapped Overlay Zone" (SC-H District) which would give owners of any R-3 zone property the option to develop low/moderate income housing for elderly or handicapped persons. The ordinance waived R-3 zoning standards and densities to encourage this use. In November 1983, Belvedere voters approved by 78% a referendum authorizing up to 15 units of affordable housing for low- and moderate- income elderly and handicapped persons.

In 1984 the Pacific Telephone building site was sold to a developer who opted to build 4 market-rate townhouses on the site. This greatly reduced the potential for new, affordable housing development in Belvedere.

The Belvedere School site was declared surplus by the School District in 1984. The School occupies merged parcels totalling about one acre at the southeast corner of Laurel and Bayview Avenues. The five-classroom building has not been used for public school purposes for the last ten years; it has been leased for various community service, educational, and artistic activities. Some of the Belvedere School lots were covered by a reversionary clause giving the original land owners priority consideration for use of the property if it is declared surplus. This site was reverted back to the Belvedere Land Company in 1985, and a master plan for the development of two single family units and four condominium units in the school structure has been approved. These will be market rate units and thus not affordable to low- and moderate- income residents.

The undeveloped 12,500 square foot parcel at 515 San Rafael Avenue, on the southeast side of the Christian Science Church, recently became available for affordable housing development. This site is an excellent location for 11 units of rental housing for low- and moderate- income senior and handicapped persons and has recently been purchased for such use by the Belvedere-Tiburon Housing Association.

The redevelopment of residential lands is highly unlikely. Because of the ever increasing property values in Belvedere, people tend to preserve large, old stately homes in excellent condition rather than demolishing the structures. However, on some very large lots, demolition to allow for subdivision has been approved or proposed. It is unlikely that this will result in a significant increase in the housing stock in Belvedere or in any moderately priced units.





### 3. Housing Needs

#### a. General Housing Needs:

The Association of Bay Area Governments (ABAG) has published the Housing Needs Determination for all communities in the San Francisco Bay Region. By law, the City must address the City's share of the regional housing need specified in the report.

The method used to derive each city's share considers market demand, employment opportunities, availability of suitable sites and public facilities, commuting patterns, type and tenure of housing, and housing needs of farmworkers (if any). The statistics are derived from ABAG's Projections '83 report which makes a number of assumptions in deriving economic and population projections. The problem with using population models is that even though they may have valid applications for large cities, these models rarely address the unique factors characteristic of smaller communities such as Belvedere. In a letter addressed to ABAG dated April 21, 1983, the City stated its concerns over the population and employment estimates derived by ABAG.

The housing needs determined by ABAG are classified into two major categories: 1) existing needs indicating how short the cities were in supplying housing for the market demand in 1980, and 2) the projected needs, which indicate the number of units required to accommodate projected household growth between 1980 and 1990 plus additional units to provide an optimal vacancy rate.

The general housing needs for Belvedere from 1980 to 1990 are summarized as follows:

Existing Unmet Need, 1980:	34 units
Additional Projected Need, 1990:	<u>8 units</u>
Total Need by 1990:	42 units
Portion of need met, 1987	<u>20 units</u>
Balance of need to be met by 1990:	22 units(see Table H-4)

ABAG further categorized housing needs by type, owner occupied and rental balance, and by income:

Housing Need by Type, 1990:	Owner occupied: 36
	Rental: 6

Given that Belvedere has only 22 remaining lots zoned for single family residential use, it appears that this breakdown is unreasonable.



Housing Need by Tenure, 1990:	Owner occupied:	32
	Renter:	10

The City's 50 second units will be counted towards meeting the housing need. It is doubtful that Belvedere will add 32 newly constructed owner occupied units by 1990, given the land capacity. If any portion of the City's existing rental stock is converted to condominiums before 1990, the resulting need for more rental units might be filled by approval of additional second units.

Housing Need by Income Group, 1990:	Very Low:	7
(As determined by ABAG)	Low:	5
	Moderate:	7
	Above Mod:	23

Belvedere will be relying on the second units to provide housing needs for about half of the 19 very low-, low- and moderate- income households, with the rest in the proposed units for the elderly to be constructed at 515 San Rafael Avenue. A survey of second units prepared in 1981 indicated that 59% of the second unit occupants who responded to the survey were in the very low- and low- income categories. New construction of market rate units will meet some of the need for above moderate-income housing units. Refer to the quantitative objectives section for a discussion of how these needs will be met.

#### b. Special Housing Needs:

Affordability is usually measured in terms of the percentage of income spent for housing. A household has usually been considered to be spending an excessive amount if it is paying over 25% of its income on housing. Due to inflationary trends in the housing market, this 25% standard has risen to 30% for federal programs. In 1980, a total of 278 households were overpaying for housing; 174 overpaying households were owners, and 104 such households were renters. Therefore, 29.3% of all households were overpaying. A distinction, however, should be made between those who simply cannot afford to live in Belvedere and those who freely choose to spend over 25% of their income on housing costs.

The proposed housing program for 1990 will focus on those very low-, low- and moderate- income persons or households which have special housing needs.

1. The elderly living alone: In 1980, 14% or 342 people in Belvedere's population were 65 years of age and older. Seventy of these elderly persons live alone.

2. The elderly on fixed incomes: Although there is no recent data regarding elderly on fixed incomes, a large percentage of those elderly living alone probably rely on fixed incomes. With recent, rapid inflation, their ability to continue to maintain the same





standard of living is threatened. Many of the elderly purchased their homes in Belvedere years ago and have paid off their mortgages.

While residing in a house which may be worth a substantial amount, the elderly person may be forced to sell the house and move out of the community in order to provide for his or her current income needs if local, reasonably priced rentals or some housing assistance are not available.

3. Overpaying renters: According to the 1980 Census, 104 renters were paying over 25% of their income for housing. Sixty-five (65) of these overpaying renters are in the very low- and low- income groups. Based upon a survey of 22 second units, 27% of the tenants are overpaying in rent.

4. Households headed by women: The number of households headed by women has drastically increased since 1970. Forty-eight (6.63%) were headed by women in 1970; in 1980, two hundred thirty four (24.7%) of all households in Belvedere were headed by women. All of the families in Belvedere which were classified as below poverty level in income (41 families, in 1980) were headed by females.

5. Public Employees: The City of Belvedere employs fifteen persons, thirteen of whom live outside the community as far away as Rohnert Park and Vallejo. Even those employees who earn above-moderate incomes cannot afford to buy in Belvedere without some financial assistance, and moderate rentals are scarce. The same situation prevails among employees of other local government units serving Belvedere, such as school, fire, and utility districts.

## B. CONSTRAINTS TO DEVELOPMENT

### 1. Market Constraints:

The shortage and high price of residential sites in Belvedere and the high cost of construction and financing make it virtually impossible to consider any major development of new housing affordable to low- or moderate- income persons. With the exception of one site suitable for higher than usual density, the market so constrains Belvedere as to preclude it contributing much to new housing development of any kind. Also, the City does not own any land which is suitable for housing development.

#### a. Shortage of Buildable Sites:

Belvedere is virtually built out. Only 22 undeveloped, scattered, residential sites have been identified within the City. Twenty-one of these are scattered single family sites. Few are actually for sale. Furthermore, some are developed as gardens for adjacent developed property of the same owner and are not expected to be on the market at any time in the near future.



There are only two small undeveloped multi-family sites suitable for development. The Belvedere School site is approved for 6 units, and 515 San Rafael Avenue is approved for 11 units. Only the latter site will provide any affordable housing.

The two small City parks are well used. Present public open space generally is Bay front property largely under water or too narrow and too near Tiburon Boulevard -- the heavily travelled main thoroughfare serving Belvedere and Tiburon -- to be suitable for housing use.

In summary, less than two percent of Belvedere's land is currently undeveloped and suitable for residential development. The site available at 515 San Rafael Avenue is being planned for 11 affordable as soon as additional funding is raised by the Belvedere-Tiburon Housing Association.

#### b. High Price of Sites:

Undeveloped residential land in Belvedere is among the most expensive in the San Francisco Bay Area. The few undeveloped, single-family sites currently on the market are priced at \$500,000 to \$1,000,000. Prices are affected by the following: 1) undeveloped property in Belvedere is scarce; 2) almost all lots have spectacular marine views; 3) the weather is excellent; 4) transportation to San Francisco is convenient by ferry boat or bus; 5) the schools are very good; 6) shopping, restaurants, doctor's offices, public and private community facilities, and churches are nearby; 7) the area has an excellent reputation for high quality homes, good security, and public spirited residents; and 8) the community is modest in size. The main disadvantage (or at least considered a drawback for some) is that the streets in the older parts of the City are very narrow and winding.

#### c. High Construction Costs:

The cost of construction in Belvedere is very high, due partially to site improvement costs for sloping sites. (Almost all of the undeveloped sites are on Belvedere Island and are steeply sloping.) It is estimated by developers experienced in the area that site improvement costs in Belvedere range upward from \$90 per square foot, having tripled in the last decade. This is more than double the \$47.45 figure reported by the Bank of America Appraisal Department for an average, standard quality house in the San Francisco Bay Area for April 1984. Except for site improvement costs, the cost of new construction in Belvedere might be lowered some, but less expensive construction with reduced amenities and design considerations does not meet market demand for development of choice, high-priced sites.

#### d. High Financing Costs:

The cost of financing expensive land acquisition and above average development costs is proportionally high, with short term interest rates for construction at about 10 to 12% and long term mortgages at





8 to 11%, plus points.

## 2. Governmental Constraints:

### a. Permit Approval Process:

The relatively few applications for building and related permits are generally processed in an efficient manner. Although the City Council and Planning Commission only meet once a month, determination on a project is usually reached in one meeting or two (if Council is required to hear the matter.)

Processing fees are commensurate with the fees for the rest of Marin County. Compared to the high costs of undeveloped unimproved land and high site development costs in Belvedere, processing and connection fees are negligible and, therefore, do not present a constraint to development. However, waiver of such fees would help reduce the cost of any proposed affordable housing.

The permit fees involved for development of each of the undeveloped sites would typically run as follows (assuming construction costs of \$350,000 for a single family dwelling):

\$300.00	Design Review
\$3,455.50	Building Permit
<u>\$2,192.00</u>	Sewer hookup
\$5,647.50	Total fees

### b. Zoning Regulations:

Zoning regulations do not appear to pose any serious problems to the development of the remaining undeveloped residential sites, though steep terrain may require requests for variances in some cases. Variances are considered on a case by case basis, with environmental problems and design receiving particular attention.

It is difficult to ascertain what the feasibility of granting necessary variances may or may not be for the undeveloped sites. It is possible for a single family dwelling to be built without variances on most of the sites. In some cases, a variance to frontyard setback may be required in order to allow for off-street parking (carport or car deck structure). The Planning Commission, recognizing the circulation problems resulting from the City's narrow streets, usually grants variances to frontyard setbacks or to parking related standards in order to provide off-street parking.

### c. Second Unit Ordinance:

The present second unit ordinance sets a limit of 50 second units. As of early 1987, the City had approved applications for a total of 50 units. The City should now review the impacts of these units on





the City and determine whether or not additional units should be considered, and if so, under what regulations.

d. Lot Area Requirements:

The lot area requirement of 15,000 sq. ft. per lot for the R-15 zone (located in the steep hill areas of Belvedere) may appear to be rather large. However, at the time this zoning density was established, virtually all residential lots were already developed. Belvedere currently has the highest population density, in terms of persons per square mile of land area, of any city or town in Marin County. The public utilities and infrastructure (sewer system and streets) are already operating at capacity. Increasing development densities would be detrimental to the environment and to the safety of the community.

3. Other Constraints:

a. Land Capacity and Environmental Constraints:

As previously mentioned, all the undeveloped sites zoned for single family development are on hillside land averaging 30-40% slopes. Access to these properties is through narrow circuitous roadways which are not serviced by public transportation. The topography of these sites warrants engineered foundations and specialized designs resulting in exorbitant construction costs. All of these factors pose some constraints to construction, particularly of affordable housing.

b. Private Deed Restrictions:

Private deed restrictions pose a major constraint to housing construction in Belvedere. Many of the properties in Belvedere carry private deed restrictions which require approval of 75% of the affected neighbors in order for a property owner to subdivide such land and develop additional housing. Even though the property may exceed the zoning standard for lot size and receive subdivision approval by the City, the owner cannot proceed with the subdivision without the required approvals from neighbors. In a specific case, the City granted subdivision approval and design review approval for a single family residence. The neighbors took the property owner to court: the court upheld the deed restriction condition.

c. Limited Availability of Affordable Housing Sites:

Two sites were previously identified as potential locations for low/moderate income housing, but both have been developed or approved for market rate housing. The only remaining suitable site is 515 San Rafael Avenue which has been approved for 11 low/moderate income senior citizen units. If this project is constructed, it will provide almost 50% of the low and very low income rental units needed.



## C. OTHER CONSIDERATIONS

### 1. Energy Conservation

The City of Belvedere recognizes the need for energy conservation, and City administrative policies encourage energy conservation practices in both public and private development and remodeling. Installation of solar panels and heating systems for residential uses are often exempted from design review hearings, and the fees are kept at a minimum of \$75 as opposed to the \$200 fee charged for projects valued over \$1000. In the City's review of landscaping plans, low maintenance and water conserving planting is encouraged.

Further, the City enforces the Residential Energy Standards (Title 24) adopted by the State. The City will make available to the public information regarding PG & E's energy audit, and energy conservation programs administered by the County and other groups. The City will review any available material and useful sources in order to analyze the "front-end costs" in comparison to the "energy cost savings." A fairly comprehensive analysis of pecuniary costs versus energy savings is contained in Technical Report #10, "Opportunities for Conservation and Solar Energy Use in Marin County" (August 1980), prepared by Sedway/Cooke in conjunction with Marin County's adopted Energy Element.

In development of low- and moderate- income units (planned for the site at 515 San Rafael Avenue), energy conserving techniques will be applied to the siting of the units, the design of utility systems, and the selection of materials. The site proposed for low/moderate incomes is located within walking distance of local shops, services, and public transportation. The installation of energy conserving devices will be considered; selection of the type and variety of devices will depend on the cost effectiveness of these systems.

### 2. Public Participation

Public hearings on the draft Housing Element of the General Plan were held before the Planning Commission and a public hearing was held before the City Council. Various individuals did comment on the Housing Element. All meetings were noticed in the local paper. Feature articles regarding the Housing Element also appeared in the local newspaper. The City publishes a newsletter quarterly which is sent to all households in Belvedere. Mention of the Housing Element and other elements of the General Plan was made, and participation in its development was encouraged in this newsletter.

For the 1984 and 1987 revisions, public hearings were held at the Planning Commission and City Council levels. The preliminary draft was reviewed and commented on by the ad hoc Housing Committee and other individuals interested in the provision of housing.





### 3. Consistency With the General Plan

This Housing Element is generally consistent with the other elements of the General Plan. The policies and programs included in this element do not conflict with any open space designations or goals. The land use map of Belvedere's General Plan reflects land uses which were established at the time of its adoption on May 5, 1975, with minor subsequent revisions. The land use map of the General Plan reflects the policies of this housing element.

#### D. GOALS, POLICIES AND OBJECTIVES

##### Goals

a. Seek responsible area-wide solutions to housing problems through interjurisdictional cooperation with other towns and cities, County of Marin, local non-profit housing organizations, private developers, and property owners.

b. Recognizing the very limited opportunities for expanding housing in Belvedere, capitalize on every possible resource to meet the priority housing needs of the community.

c. Provide for some variety in housing types and prices.

d. Preserve and maintain existing housing.

e. Expand the opportunity for housing available to persons of low- and moderate-income, especially the elderly and public employees, to the limit possible within existing constraints.

f. Relate housing growth to the capacity of the residential service system and high community standards of aesthetics in harmony with the environment.

g. Involve citizens in updating and carrying out housing plans.

##### Housing Policies and Objectives

1. The City shall maintain a reasonable rental stock, recognizing the need for such units to accommodate those preferring to rent or those unable to purchase homes in Belvedere.

Objective: To monitor condominium conversions and assess their impact on the rental market after 35 condominium conversions, which could reduce the present rental supply from 31% to 28%.



2. The City shall make available information regarding City, County, State and Federal housing programs and advise and assist low and moderate income elderly living alone and elderly on fixed incomes having difficulty continuing to own and maintain their homes.  
Objective a) To support the RAM (Reverse Annuity Mortgage) program and other financing techniques which will enable eligible low- and moderate-income elderly persons to convert housing assets to needed income without leaving the community; b) To support shared living programs for the elderly by utilizing housing not occupied to reasonable capacity; c) to support property tax reduction and deferral programs for low-income elderly homeowners.
3. The City shall seek to maintain and expand the supply of affordable housing for low- and moderate-income persons.  
Objective: The City should review the impacts of the 50 second units already approved, and determine whether or not additional units should be considered. In processing applications for newly constructed second units, preference will be given to accommodations with low and moderate rentals.
4. The City shall assist in the provision of housing for public employees.  
Objective: To explore various financing techniques which will provide affordable units for public employees.
5. The City shall provide financial assistance where possible through City budget allocations, fee waivers, or cooperation with private fund raising activities to expand housing opportunities in Belvedere and the neighboring housing market areas.  
Objective: a) To support and contribute to the Marin County Housing Authority's rental assistance program; b) To encourage private foundations and individuals to fund non-profit housing programs for low and moderate income persons.
6. The City shall encourage the incorporation of energy efficient systems in all housing to help reduce overall operating costs and to conserve energy.  
Objective: To develop and adopt an energy conservation program for the City.
7. The City shall encourage and support development proposals which provide new housing for low and moderate income households.  
Objective: To process applications for low and moderate income housing in an efficient manner, avoiding unnecessary time delays, waiving building and other City non-recurring fees and, if appropriate, granting density bonuses to make





maximum use of available sites.

8. The City shall support fair housing practices and shall encourage housing opportunities for all persons to purchase or rent adequate housing, regardless of age, race, sex, marital status, ethnic background, source of income or other arbitrary factors.

Objective: To utilize fair housing practices in screening the occupants of the low and moderate income housing projects discussed in this element, and support the fair housing efforts made by the county mediation board and other fair housing organizations.

#### E. HOUSING PROGRAMS (1980-1985 AND 1985-1990)

The State requires jurisdictions to develop a housing program up to 1990. From 1980 to 1985, 21 lower-, low- or moderate-income households have been assisted in Belvedere. If funding sources continue and adequate sites become available, Belvedere may assist up to 40 additional households, including residents of second units. A summary of these programs is presented in Table H-4.

##### 1. Existing Programs:

A number of housing assistance programs which operate within Belvedere, for which the City plans continued support and cooperation, are described below:

a. Rebate for Marin Renters: This program is administered by Marin County Housing Authority (MCHA) and is a cooperative program between local jurisdictions and MCHA to provide rental assistance to low income renters. The program has been funded by the County with private foundation grants and some matching funds provided by the cities, but currently is somewhat curtailed due to lack of foundation funding. Under this program, the renter is subsidized directly without the knowledge of the landlord. This program also subsidizes rents which are higher than the fair market rent maximum allowed under most other rental programs. Three households in Belvedere have been assisted by this program and two are currently covered.

b. Section 8 Existing Housing Assistance Payments Program: This program is funded by the U.S. Department of Housing and Urban Development (HUD) and administered by the Housing Authority. Eligible tenants are subsidized the difference between 30% of their income and their rent (which must fall within the fair market rent categories set by HUD). Subsidies are paid directly to the landlord. This program has been cutback resulting in a decrease in Belvedere households who are assisted (five households in 1980 and one in 1987). Statistics on Section 8 are provided by the Marin County Housing Authority.





TABLE H-4: PROGRAM SUMMARY

PROGRAMS	SPECIFIC ACTIONS	FINANCING	RESPONS. FOR IMPLEMENT	TIME FRAME
<hr/>				
A. Housing Preservation				
<hr/>				
Residential Rehabilitation Loan Program	1) Continue ongoing program 2) Advertise availability of program	CDBG FUNDS HUD	City/MCHA	1985-90
B. Rental Assistance/ Affordability				
<hr/>				
1. Rebate for Marin Renters Program	City contribution to provide matching fund for program	General Funds Buck Trust	City/MCHA	1985-90
2. Section 8 Existing Housing Program	1) Continue ongoing program 2) Advertise availability of program	Section 8 - Existing (HUD)	MCHA	1985-90
3. Reverse Annuity Mortgage Program (RAM)	Advertise availability of this program	San Francisco Foundation	San Francisco Development Fund	1985-90
C. Provision and Development of Sites				
	City shall work with the Housing Authority, EAH and Belvedere-Tiburon Housing (BTHA) to provide low or moderate income rental housing in Belvedere 1) BTHA has secured an option on the property at 515 San Rafael Avenue (next to the Christian Church) for affordable housing 2) The City has helped secure CDBG and other foundation grants to fund major project costs.	Sect.202 (HUD) Tax-exempt bonds CDBG (HUD) Buck Trust	CITY/MCHA EAH/BTHA	1985-90
D. Promote Affordability				
<hr/>				
1. Second Units	1) Continue to process 2nd unit applications 2) Advertise availability of programs to assist renters of second units	N/A	City	1985-90



c. Residential Rehabilitation Loan Program: This rehabilitation program provides technical and financial assistance with loans up to \$15,000 to low- and moderate-income persons. Community Block Grant funds are used to generate home improvement loans with interest rates of four to ten percent. Currently one Belvedere household is being assisted through this program.

d. Second Units: Currently the City has a second unit ordinance which requires owners of existing and potential second units to obtain a use permit. Although this ordinance does not presently control rents for second units, it does legalize units which typically provide low and moderate rents and would otherwise be abated. In surveying 22 second units in 1981, it was found that seven units, or one third, provided affordable rental housing for lower- and low-income households. Another six units were occupied by low-income persons paying over 25% of income for rent. One of the purposes of this ordinance is to provide affordable housing for low- and moderate-income persons. As of the end of 1987, a total of 50 units were approved, the maximum permitted by the City's ordinance.

e. Condominium Conversion Ordinance: Belvedere adopted an ordinance in 1983 which regulates the conversion of apartments to condominiums. The city recognizes the potential impacts of condominium conversions upon the rental stock and has set an initial conversion limit of 35 condominium units. When that number has been reached, the City will evaluate the impacts of conversions on the rental stock.

f. RAM (Reverse Annuity Mortgage) Program: The purpose of this program is to help low income elderly homeowners derive income from the equity in their homes while continuing to live in them. Loans are made to seniors based on the equity in their home; the loans must be paid back at the end of a specified term. Another option is the sale and leaseback plan whereby the senior sells the home to either an investor or an heir, who leases the property back to the senior for life. Usually the senior receives a substantial monthly payment from the buyer of the home. The RAM program has been funded by the Buck Trust. At least three Belvedere homes have been included in the RAM program since it began in the early 1980s. The City shall continue to support this program and assist in advertising its availability to seniors within the community.

## 2. Proposed Programs:

a. Site Provision and Funding Programs: The City is working with the Belvedere-Tiburon Housing Authority (BTHA) to acquire and develop the site next to the Christian Science Church for low and moderate income rental housing for the elderly using a number of funding sources.





1) HUD 202 Program: This program provides direct, low interest loans to non-profit developers to construct housing developments for low income elderly and handicapped at modest rents. HUD's Section 8 program also provides long-term rental subsidies for Section 202 projects.

2) Tax Exempt Bonds: The City might be able to sell tax exempt bonds or use the assistance of the Housing Authority's non-profit housing corporation in this regard to provide below market rate interest loans to private developers of low rental housing. Also, the California Housing Finance Agency (CHFA) provides tax-exempt bond financing and is working with BTHA to help fund its project.

3) Private Foundations: Grants for assistance in housing may be provided by the Marin Community Foundation and other sources. The City will pursue these funds where appropriate. The Buck Trust has committed \$173,700 to BTHA for its development. Support has also been pledged by the Rotary Club and St. Stephen's Guild.

4) Community Development Block Grant Program (CDBG): The City participates in the allocation of CDBG funds throughout the County. As of the end of 1986, \$177,636 had been approved, and additional grants may be available for future years.

b. Fee Waivers: The City shall waive planning and building permit processing fees and sewer connection fees for projects which include low or moderate income units.

c. Increased Densities: The City will approve appropriate density bonuses for low- and moderate-income housing proposals and waive or amend current zoning limitations as necessary. The City's Senior Citizen and Handicapped Overlay Zone waives certain density limits and zoning standards to assist in development of affordable housing for such persons.

### 3. Belvedere's Five Year (1985-1990) Housing Program:

- A 1990 objective of assisting four Belvedere households through the Rebate for Marin Renters Program is based on a City contribution and matching funds from the Marin Community Foundation.

- Since 33% of the second units surveyed provided affordable units for low- and lower-income households, it is assumed that 33% of the total allowable second units (50) will provide affordable units for the lower- and low-income households. The remaining 33 units will provide housing primarily for above moderate-income households.

- The number provided under the Site Provision program is the number of units (11) approved for the elderly at 515 San Rafael Avenue. Since other programs are subject to short term public financing, to decisions of owners of private property to participate, or to real estate market conditions, the only permanent program to assure long-



range affordable housing is site development specifically for such use with appropriate contractual commitments.

Table H-5 indicates the housing programs utilized to assist low-income households in Belvedere:

TABLE H-5

Low-Income Households Benefiting from City Programs:  
Existing and Projected

<u>No. of Households</u>		<u>Program</u>
<u>1987</u>	<u>1990</u>	
3	5	Reverse Annuity Mortgage(RAM)
2	4	Rebate for Marin Renters
14	17	Second Units
1	3	Section 8 (HUD)
<u>0</u>	<u>11</u>	Site Provision
20	40	Total

Notes: The availability of future federal funding is unknown. Cutbacks in programs resulted in decreased assistance from 1980-1986.

F. QUANTIFIED HOUSING OBJECTIVES: (1990)

In efforts to meet the housing needs determined by ABAG, Belvedere shall try to achieve the housing mix described in the following table. The achievement of these objectives depends on the continued funding of the Rebate for Marin Renters program and the continued desire of most second unit owners to rent out their units. In granting second unit use permits and in providing affordable housing on lands which become available for such purposes, the City shall give priority to those groups which have been identified as having special housing needs (elderly living alone and on fixed incomes, households headed by single parents, and public employees). Table H-6 summarizes Belvedere's housing objectives for 1990.



TABLE H-6

Quantified Housing Objectives for 1990

<u>Programs:</u>	<u>Very Low</u>	<u>Low</u>	<u>Moderate</u>	<u>Above Mod.</u>	<u>Renter</u>	<u>Owner</u>
- RAM		2	3			5
- Rebate	2	2			4	
- 2nd Units	5	12	23	10	50	
- Section 8		3			3	
- Site Provision		11			11	
- New Construction (undev. land)		14		14		
Totals	<u>7</u>	<u>34</u>	<u>26</u>	<u>24</u>	<u>68</u>	<u>5</u>
ABAG Targets	7	5	7	23	10	32





## V. OPEN SPACE, SCENIC ROUTES, CONSERVATION

As Belvedere residents began to turn their attention to planning tools in 1970 and 1971, the retention of environmental quality was foremost among community objectives. The first study, commissioned to Berridge, Becker and Julin, was for a long-range development plan for parks and recreation, including the entire open space fabric of the city. The resulting plan, as elaborated on by the Open Space Committee in 1972, embodies the usual concerns of the Open Space and Scenic Highways Elements of a General Plan. Conservation Element concerns and other environmental quality issues were raised and dealt with during the 1971 Planning Study.

### A. SETTING

#### 1. Environmental Quality -- Existing Environment

As a compact, small scale, almost wholly developed community, Belvedere's environmental assets include: structures that tend to fit with existing hill and lagoon terrain; lush vegetation; narrow winding streets; open water surroundings; magnificent marine views from the streets, walks and lanes; intimate, inward-oriented views for the Lagoon area; and important public open spaces, including Community Park, Belvedere Cove, San Rafael Avenue waterfront, and Lagoon Road Park. Vistas of the Tiburon hills and ridge and of the Sausalito waterfront and hillsides form a backdrop to Belvedere residents' vistas, and are an important part of Belvedere's environmental context.

#### 2. Existing Open Space

Existing permanent open space includes water related areas, parks, lanes, paths, and view areas.

##### a. Water Related Areas:

1. The open water and landlocked water areas within the city limits.

2. The city-owned beaches and tidelots, including parts of the Belvedere Cove and the edge of Richardson Bay along San Rafael Avenue and West Shore Road.

3. The privately owned harbor and tidelots, including approximately 1,000 linear feet along Beach Road owned by Belvedere Land Company, and the San Francisco Yacht Club.



b. Parks:

4. "Community Park," the city park adjacent to Community Hall.

5. "Lagoon Road Park," the strip between Lagoon Road and Tiburon Highway.

6. The small, City-owned, central island at the intersection of Beach Road and San Rafael Avenue.

c. Lanes and Paths

7. The lanes and paths are discussed in detail in the Circulation Element of this General Plan.

d. View and Other Areas:

8. Areas providing views of Belvedere Lagoon are found along San Rafael Avenue between Windward and Edgewater Roads, on Lagoon Road at the Belvedere Sailing Society, and at the dredging access to the Lagoon near the end of Mallard Road.

9. "Cove Beach," the area along Beach Road between the China Cabin and the Tiburon Town limit.

10. View area at Beach Road and Belvedere Avenue at the Winifred Allen Bench.

11. View easements at turn-arounds on West Shore Road.

12. Cliff areas above West Shore Road owned by the City.

13. View areas at the southeast end of Corinthian Island.

14. All existing lanes on Belvedere and Corinthian Islands, whether in use or dormant.

15. Various small spaces at street junctions where City-owned rights of way permit development, in varying degrees, of small rests, short-cut walks and steps, planted areas, etc.





Examples are:

- Juncture of Oak and Bella Vista Avenues
- Juncture of Oak and Bayview Avenues
- Juncture of Fern and Madrona Avenues
- Juncture of Lagoon Road and Tiburon Boulevard
- Circular park at end of Golden Gate Avenue

16. Underdeveloped privately owned properties, including buildable lots and non-buildable contiguous substandard lots.

17. City owned one-foot wide strip along southwest shore of Corinthian Island.

18. Views and vistas of open lands in surrounding communities including Tiburon, Sausalito, Strawberry and Mill Valley.

#### B. OPEN SPACE PLAN

The Parks and Recreation Long Range Development Plan, adopted in 1970, incorporated plans for individual and key public open spaces within an open space system plan which includes the two important scenic routes and the proposals concerning the design considerations of important auto and pedestrian ways. The open space plan is depicted in Exhibit 3. The following specific plans and recommendations are incorporated by reference:

For public open spaces, the plans for:

1. Main park at the Community Center Complex
2. Cove Beach
3. Lagoon Road Park
4. The island at Beach Road and San Rafael Avenue, in front of the San Francisco Yacht Club.

For scenic routes:

1. Tiburon Blvd. treatment (within Lagoon Park Plan)
2. San Rafael Avenue and Beach Road
3. The Pedestrian System: walks, lanes, and proposed interconnections.

#### Additional Recommendations

1. Where there is pedestrian access to beach and water areas, it should be maintained. Potential for additional views or access along unmaintained or unimproved lanes should continue to be investigated.



2. As an alternative to acquiring open space properties through eminent domain proceedings, a Belvedere land trust or foundation could be created to assist in financing the acquisition of open space land, easements and development rights, and in holding such properties on behalf of the City.

3. The City should explore means to assist the Town of Tiburon in securing open space which is visually important to the City of Belvedere.

### C. POLICIES

The following are the environmental quality policies and related implementation devices. These were developed in the Open Space Plan, the Belvedere Planning Study, and the 1975 General Plan study.

1. Views are to be preserved.
2. Open space should be secured by a variety of means, including purchase, dedication of land, development rights, and view easements or view corridors. Provisions for dedication were incorporated as part of Zoning Ordinance revisions.
3. Encroachment on open water should be limited to public trust purposes. At present, open water is protected by a combination of public ownership, Audubon Society and yacht club ownerships, recreation zoning, and Army Corps of Engineers and Bay Conservation and Development Commission (BCDC) jurisdiction. BCDC's San Francisco Bay Plan imposes such stringent limitations that it is unlikely development would be permitted on the few privately held open water lots. Additionally, the Richardson Bay Special Area Plan, adopted by the City in 1985, recommends against any development of open water areas. Zoning should be provided for these areas.
4. The scenic qualities of major circulation routes within the city should be enhanced.
5. All public and private actions that significantly affect the quality of the environment will be reviewed in accordance with the unique characteristics of each proposed action and each potential location under the specific mandatory procedures adopted. The responsibility for this review is delegated to the Planning Commission.



As mentioned in the Land Use Element policy section, considerations of view, of compatibility with the surrounding environment, and of intensity of site use are factors to be reviewed.

6. Areas prone to geologic hazards should be closely regulated, field investigation of hazards prior to development should be required, and the City should consider dedication of land as open space for safety reasons. However, liability and insurance considerations may limit the City's ability to accept dedication of such properties or to permit their development.
7. The City should cooperate with the Town of Tiburon in preserving open space in Tiburon which has a major visual impact on the views of residents of Belvedere. Further, efforts should be made to work with other neighboring communities in their efforts to preserve open areas which are visible from Belvedere.





## VI. ENVIRONMENTAL HAZARDS

### A. BACKGROUND

#### 1. Purpose

This Environmental Hazards Element of the Belvedere General Plan examines some of the special problems of developing property in Belvedere's unique environment, and proposes strategies to insure that Belvedere remains a safe, as well as an environmentally attractive, setting.

The text is arranged to:

- Provide an introduction to the environmental setting of Belvedere, in geologic, seismic and other hazard terms.
- Describe the relationships of these natural hazards.
- Propose policies designed to lessen the costs and dangers of these hazards.
- Append and reference important technical and background information.

The objectives of this element are to reduce potential injury or loss of life and to lessen possible property damage. City initiated measures to lessen risk to human life and property should focus upon:

- Areas identified as known or suspected greatest natural hazard areas; and
- Those hazards which can be avoided or mitigated for new development through improved land development practices.

#### a. Why an Environmental Hazards Element?

This element has its origin in State law and much recent public concern. State law mandates the inclusion of a seismic safety and safety element as part of every local government's adopted General Plan.<sup>1</sup>

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1. Government Code Section 65302(65302.1)-A seismic safety element consisting of an identification and appraisal of seismic hazards such as susceptibility to surface ruptures from faulting, to ground shaking, to ground failures, or to the effect of seismically-induced waves such as tsunamis and seiches. The seismic safety element shall also include an appraisal of mudslides, landslides, and slope stability as necessary geologic hazards that must be considered simultaneously with other hazards such as possible surface ruptures from faulting, ground shaking, ground failure and seismically induced waves. A safety element for the protection of the community from fires and geologic hazards including features necessary for such protection as



Beyond this mandate, however, there are compelling reasons for citizens and decision-makers to concern themselves with identifying and ameliorating hazards inherent in Belvedere's natural setting.

Homeowners, developers, and government officials experience real hazard problems, often with significant property losses and occasionally with danger to people in their daily activities.

There have been small landslides, differential ground settlements, and soil shrinkages causing foundation cracking, road buckling, utility breakage and sometimes complete wreckage of structures. In addition to this regular toll exacted by the environment in response to inadequately planned or engineered projects, there are unavoidable sudden dangers of flood or wildfire. These, too, draw most of their threat from the lack or inadequacy of land planning of an earlier time. Looming over all is the ever-present potential for another major earthquake as in 1906.

While these costs and dangers are impressive, they can often be avoided altogether, almost always be reduced, and, in the case of major earthquakes, at least be well prepared for.

Varying degrees of protection can be taken to safeguard against the hazards associated with the environmental conditions discussed in this element. The costs necessary to insure against damage can be very great, and judgments about the risk entailed must include the weight of the consequences for not undertaking such measures. Many of the recommendations which take the form of policies are measures which the City, as a rule, implements at the present time. Every year brings us a greater knowledge of the sciences which explain the complex phenomena and earth processes involved in these environmental hazards; each year our ability to assess risk and develop measures to preclude or mitigate such risk increases. The policy recommendations attempt to reflect the evolution of the "state of the art," and they demand a sophisticated degree of case by case evaluation.

There are many possible environmental hazards. Seismic and non-seismic geologic hazards, as well as fire and flood, are specifically included in this element because:

- They have all occurred in Belvedere in recent history, sometimes with devastating effect, and they all could occur again in the future, and

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evacuation routes, peak load water supply requirement, minimum road widths, clearances around structures, and geologic hazard mapping in areas of known geologic hazard.





- These topics are mandated by state law to be part of each jurisdictions' adopted general plan.

Environmental hazards not in this element include: vector-related health hazards, air pollution, water supply contamination, noise, airport landing and takeoff safety zones, and others which are not likely to significantly impact Belvedere.

## B. SETTING

### 1. Geology

The terrain of Belvedere and Corinthian Islands consists of a complex assemblage of Franciscan formation rocks, such as serpentine, greenstone, graywacke, chert, shale, sandstone, and glaucophane schist. While most of these types exist in small amounts on the islands, predominant are greenstone -- rocks of volcanic origin -- and sandstone -- tough, nonporous, thickbedded graywacke. Quaternary deposits -- fine to medium grained sands, with minor amounts of clay possibly included, characterize the geology of some lower portions of the east side of Belvedere Island, including lower Beach Road and San Rafael Avenue. The Lagoon area is 1-1/2 feet to 3 feet of homogenous artificial fill materials over younger bay mud. The mud ranges in depth from a minimum of 20 feet to over 90 feet, as found in preconstruction borings.

### 2. Slope Stability

Belvedere has two different topographic settings that define sharply contrasting geologic conditions and stability problems which exist independent of any triggering seismic event. These are:

- The steep hills and ridges which are subject to landslides and downhill creep.
- The bay plains, marshlands, and mud flats subject to subsidence and differential settlement.

It should be noted that, in the absence of a major earthquake, these conditions are the source of most of the losses due to natural hazards in Belvedere.

### 3. Seismic Risks

Marin County occupies a geologic setting that is both complex and dynamic. The County lies astride the San Andreas fault, an active rupture between two great plates of the earth's crust. For many millions of years the Pacific Plate, which includes the Point Reyes Peninsula, has been migrating northwest, sporadically jerking and sliding past the North American Plate along this rupture. As a result, different bedrock sequences that originated



many miles to hundreds of miles from each other have been juxtaposed on opposite sides of the fault, which follows the trough-like Olema Valley and Tomales Bay.

Other than the San Andreas, no active faults, established as potential sources of earthquakes, are known within Marin County. However, most of the County is sandwiched between two major active fault zones, the San Andreas and the Hayward, both of which have generated great earthquakes during the 200 years of recorded history of the area.

The predominant sources of earthquake damage to be expected in the uplands of Belvedere are from landslides and fires triggered by the shaking.

Because many streets in the hills traverse upslope landslide deposits, and streets are the usual routes of underground utility pipes, it should be expected that a great earthquake generated in the north Bay Area will result in the disruption of some transportation routes and the rupturing of water, gas, and sewer lines as a result of earthquake-induced landslides.

The levels of risk both on Belvedere and Corinthian Islands and in the Lagoon area, based on the available information, suggest radical action is not warranted. In support of this view is the fact that, in housing areas similar to the Lagoon, where risks are obviously highest, houses of wood frame construction have survived ground shaking and subsidence -- even in the strongest known earthquake -- without loss of life. Structures with the highest potential hazard -- those on the Lagoon, and those of brick or stone or having large areas of glass -- could be made safer through remedial measures to reduce structural hazards. Older homes on Belvedere and Corinthian Islands may not meet seismic safety standards, especially with respect to proper attachment of framing to foundations, bracing of structural members, and shut-off systems for electrical, water, and gas lines. Such defects should be noted during the residential resale inspections so that they can be corrected.

In the absence of more definitive information indicating problems more severe than those known, community consensus is that these levels of risk are acceptable.

#### 4. Fire Hazard

Fire protection for the city is provided by the Tiburon Fire Protection District, along with the volunteer fire department. However, the fire hazard potential in Belvedere continues to be a community concern. In part, the hazard is caused by the large number of eucalyptus trees with their highly inflammable droppings. It is also caused by the steep down and upslope portions of some lots which, due to difficult access, grow wild and con-



tain flammable debris and brush. Houses built close together, particularly in the Lagoon area, also contribute to the fire hazard potential. The extremely narrow and winding streets are also an impediment to quick response by the Fire District.

#### 5. Emergency Access

Access for fire and police vehicles has been and will continue to be a significant concern. The narrow city roads present access difficulties, particularly where on-street parking by residents, guests, and construction vehicles makes the right-of-way too narrow to permit a fire truck, ambulance, or even a police car to pass.

#### 6. Flooding

During the January 1982 storms, a number of the properties fronting on Belvedere Lagoon experienced yard and house flooding. To some degree, this may have been partially due to poor maintenance of storm drainage systems. Further, there was little advance warning of the severity of the storm, which exceeded all recorded storms in Marin County. Since 1982, street drainage has improved and runoff decreased. A list of flooded properties is maintained by the City Engineer.

### C. POLICIES AND OBJECTIVES

The following objectives serve to guide the development of Belvedere in a healthy and balanced environment.

- Closely regulate development in areas prone to fire, flood and landslides.
- To assure public safety in flood plains, and severe geologic risk areas, regulate the construction of concentrated or hazardous uses, such as schools, community facilities, and housing.
- Require thorough field investigation of geologic hazards as a prerequisite to development approval and require site works to minimize such risks.

The following policies are a means of achieving a safe and high quality environment:

1. Support public awareness of environmental hazards by actively advising citizens of the availability of local area hazard studies, sources of hazard information, and public services.
2. Continue to support scientific geologic investigations to refine, enlarge and improve the knowledge about active fault zones, areas of instability, severe ground shaking and similar hazards in Belvedere.





3. Construction shall be located and designed to avoid or minimize the hazards from earthquake, erosion, landslides, floods, and fire.
4. In the areas identified as subject to ground-shaking, the development of structures for human habitation, including residential and commercial uses, shall incorporate engineering measures to mitigate against risk to life safety, at least to the extent provided by the current Uniform Building Code adopted by the City of Belvedere.
5. Applications for developments or additions proposed to be sited on landslide deposits, non-engineered fill, or bay mud shall be accompanied by a geotechnical engineering investigation directed to the problem of ground shaking and ground failure. The engineering geologist and civil engineer shall submit recommendations regarding site development, structural engineering, drainage, etc.
6. Projects<sup>2</sup> proposed for slopes rated 3 or 4 in stability classification (on maps prepared by the California Division of Mines and Geology) shall be evaluated for stability prior to consideration of site design or use. The evaluation should include the structural foundation engineering of the actual site and should include possible impact of the project on adjacent lands. Where, in the course of land development review, it is determined to be necessary, this evaluation shall also apply to remodeling and/or additions on existing single family lots.
7. In projects where such evaluations indicate that state-of-the-art measures can correct instability, the City should require that the foundation and earth work be supervised and certified by a geotechnical engineer, and where deemed necessary, by an engineering geologist.
8. Known landslides and landslide-prone deposits on steep slopes should not be used for development except where engineering and geologic site investigations indicate such sites are stable or can be made stable providing appropriate mitigating measures are taken. In such cases, it must be shown to the satisfaction of the City that the risk to persons or property or public liability can be minimized to a degree acceptable to

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2. "Project" includes the construction or modification of an existing single-family home or accessory structure or larger project.



the City.

9. Filled land which is underlain by compressible materials (bay mud, marsh, slough) should receive special attention during site planning. Soils investigations should include borings and sufficient examination to determine the location of former sloughs and other factors which would accentuate differential settlement. And, the investigation should delineate those areas where settlement will be greatest, subsidence will occur, etc., and should recommend the site preparation techniques which could be employed to preclude hazard.
10. The City's program of systematic lot and eucalyptus cleanup should be stepped up. The program works as follows: the owner is informed his property constitutes a fire hazard and is given a time limit to clean it up. If he fails to do so, the City cleans up the lot and assesses the owner.
11. The Planning Commission, with the building inspector and fire chief, should periodically review the building code to ensure maximum reasonable fire hazard protection.
12. All plans for development of vacant sites and major remodeling shall be referred to the Tiburon Fire Protection District for review and recommendations.
13. To assure emergency and public service vehicular access in places where 10 foot road width is critical, vehicles which overhang those limits shall be cited.

#### D. IMPLEMENTATION

The majority of the policy recommendations pertain to the review of development applications and to guiding staff and decision-makers in the consideration of land development and hazard zones. Accordingly, there are few alterations to the existing practices of the City which would be necessary to accommodate policy implementation.

It is recommended that the first level of implementation be achieved in the following fashion:

1. Institutionalize the Environmental Hazards policies through review for possible amendment of the grading, subdivision, zoning, building code, design review (zoning), and other sections of City Code.
2. Prepare for general public availability the hazard zone delineation maps, including floodways, seismic zones, and



areas of relative slope stability enabling site plans to be designed according to the constraints of the site.

3. Consult the hazard zones maps in the conduct of the initial study pursuant to the California Environmental Quality Act.
4. Address the hazard in the preparation of Environmental Impact Reports.

Subsequent revision to development review practice or City Municipal Code should take place over time, assessing the degree of progress in the implementation program.





## VII. NOISE

In recognition of the adverse environmental impact of noise -- that excessive noise is socially disruptive, may be physically and psychologically damaging, and can diminish property values and levels of productivity -- the State now requires each community:

- to assess noise problems within the community,
- to measure and project noise impact of major transportation arteries,
- to adopt standards and criteria relating land use to reasonable noise levels, and
- to outline implementation measures.

### A. SETTING

#### 1. Sources

The City of Belvedere has increasingly found that noise is a source of community concern. Excessive noise from traffic, from construction equipment and activities, from yard/garden equipment, and other, more sporadic sources, including amplified music and speech from yacht club special events, is objectionable. Additionally, the irregular topography of the City, along with the surrounding water areas, causes noise to be transmitted in irregular ways, with some distant sources of noise seeming to be very near due to reflection off of water or hillside surfaces.

#### 2. Definition of Terms

1. Decibel: A unit for measuring the relative loudness of sounds detectable by the human ear, abbreviated dB(A).
2.  $L_{eq}$  is the equivalent of a steady noise containing the same amount of energy as a fluctuating noise over the same period.
3.  $L_{dn}$  is the day-night average noise level,  $L_{eq}$ , with a penalty for the nighttime hours -- that is, noise levels occurring between 11 pm and 7 am are treated as though they are 10 dB noisier than they are.

#### 3. Noise in Belvedere

The major noise generators affecting Belvedere are the two major roads serving the city: Tiburon Boulevard and the San Rafael Avenue - Beach Road loop. The following table shows existing and projected sound levels at selected distances from the center line of each road. Traffic noise includes buses.



Table N-1 - Traffic Noise

		Average Daily Traffic	Distance from CL of Roadbed Noise Calculation in Lan dB(A)					
			45	55	65	70	75	80
Tiburon Blvd. from Trestle Glen to Main St.								
	1974	15,824	1440	360	90	45	22	11
	1990	15,500-20,000	1600	400	100	50	25	12
San Rafael Avenue -Beach								
-Tiburon Blvd.	1974	2,917	480	120	30	15	7	3
(County)	1990	5,000-10,000	1120	280	70	35	17	8
	1990 <sup>1</sup>	3,300	538	130	33	17	8	4

Using the "protection" level for residential areas of 55 dB(A), housing along Lagoon Road and the north end of Cove Road exceeds the limit because it is affected by Tiburon Boulevard traffic noise. Similarly, housing on both sides of the San Rafael Avenue - Beach Road loop is affected by Tiburon Boulevard. In these cases, however, neither existing nor projected levels fall into the hearing loss consideration category, and in fact range 5-10 decibels below the level.

By another mode of evaluation, community response, Belvedere can be characterized as a relatively quiet community in which noise is a significant community concern, even though in absolute terms, noise levels may not exceed legal standards. Because of the way in which noise tends to "bounce" around, noises are heard in locations which are quite unusual. Further, the topography tends to amplify some noises rather than absorb them.

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1. The "high" 1990 estimate done by the County is based on population projections resulting from uncontrolled operation of the market. It seems excessive since Belvedere is mostly developed, and since street capacity in the City will act as a brake on car trip increases over the next 20 years. Assuming modest increases in the use of auto alternatives, the second estimate, roughly a 10% traffic increase, is more likely.



Community Response Predictions  
Categories Related to Noise Level

Lan for residential areas

I. Some noise complaints may occur, and noise may, occasionally, interfere with some activities.

55-65

II. In developed areas, individuals may complain, perhaps vigorously and group action is possible.

65-75

III. In developed areas, repeated vigorous complaints and concerted group action might be expected.

Over 75

Belvedere is a Category I community. Within Belvedere, there has been some sensitivity to the transmission of sound over water and to the use of noisy construction and yard/garden equipment such as leaf blowers and saws. In 1987, the City Council passed an ordinance banning gasoline powered leaf blowers. Amplified sound from events at the yacht clubs has also caused numerous complaints.

B. POLICIES

Belvedere should continue to maintain noise levels compatible with public health and safety within the city. In order to accomplish this, the City Council should direct the preparation of a comprehensive Noise Ordinance which addresses construction noise, amplified sound, hours of use for equipment, etc.

1. Belvedere shall consider development of a comprehensive noise ordinance regulating the hours and days of construction activity, limiting the use of yard/garden and construction equipment which generates significant noise, and regulating amplified sound systems used outdoors, and other noise sources considered objectionable by the community.





## GENERAL PLAN SUMMARY

The following recommendations represent the major policies and proposals of the Belvedere General Plan.

### A. LAND USE

1. Significant new development is discouraged. Building is permitted only on existing legal lots of record or new lots of legal size for the residential zone in which they lie.
2. Residential densities shall be controlled to preserve the character of Belvedere. The two single family zones -- R-15, requiring 15,000 sq. ft. of lot area per unit, and R-1, requiring 7,500 square feet of lot area per unit -- are retained. Additional density regulations, based upon floor areas, setbacks, slope, and environmental considerations, should be studied for inclusion in the Zoning and Subdivision Ordinances.
3. New construction is to be in harmony with existing development. To ensure reasonable intensity of lot use, ensure high environmental quality, and maintain the density and character of the neighborhoods, the City has design review standards in addition to controls on height, bulk, floor areas, and setbacks.
4. The circulation system is to be retained essentially as is, with no improvements planned beyond those needed to remove safety hazards.
5. Opportunities to expand the supply of moderate income housing in response to needs of the current population are to be explored and implemented. The Belvedere School site and the nursery school site were identified in 1975 as potential sites for this use, although neither is now available. However, a site adjoining the Christian Science Church on San Rafael Avenue has become available, and is zoned R-3 with the Senior Citizen-Handicapped overlay district to allow for moderate income housing. Further, a second unit ordinance was adopted in 1981 allowing for up to 50 such units; all of these units had been allocated as of 1987. Whether or not additional units should be permitted above the original 50 units should be the subject of further study by the Planning Commission and City Council.
6. The open water surrounding Belvedere is to be kept open in perpetuity. In 1984 the City adopted the Richardson



Bay Special Area Plan, along with the other three cities and the County of Marin which adjoin the Bay. This Plan provides for a vessel-sewage no-discharge area to be created in Richardson Bay, and for changes to the anchorage regulations in the Bay and in Belvedere Cove which will help to eliminate the random anchoring of boats throughout the Bay. The City incorporates the policies of the Richardson Bay Special Area Plan (RBSAP) into its General Plan.

7. A desirable feature of every Belvedere home should be usable outdoor open space. Minimum usable outdoor living space standards were incorporated into zoning and building regulations for the multi-family zones. Additional regulations on floor area ratio and lot coverage should be considered for inclusion in the single family residential zones.
8. Views of the Bay, San Francisco, and the mountains are to be retained wherever possible. The 1981 revisions to the Zoning Ordinance incorporated provisions for the dedication of a view site or easement.
9. Present density standards (and existing densities) are as follows:
  - a. R-1 zone: 2.5 to 5 dwelling units per gross acre.  
6.75 to 13.5 persons per acre.
  - b. R-15 zone: 1 to 2.5 dwelling units per gross acre.  
2.7 to 6.75 persons per acre.  
(Small lots in this zone raise the current density range to 1-3.0 d.u. per gross acre.)
  - c. R-2 zone: 5 to 14.5 dwelling units per gross acre.  
13.5 to 39 persons per acre.
  - d. R-3/R-3C zones: 5 to 20 dwelling units per gross acre.  
13.5 to 54 persons per acre.
  - e. R-3/SC-H overlay: Same as R-3, except density may be increased upon Planning Commission's findings of benefit to the community and lack of environmental impact.
  - f. C-1 Floor Area Ratio not in excess of 1:1.  
Not over 50% of lot covered.  
Minimum lot of 5,000 square feet.



10. Based on the seismic and geologic study in which the City participated with the County in 1975, additional regulations have been added to the City's code requiring special geologic studies prior to any development of sites in hazard areas. Further studies may also show some small areas within existing residential zones which should not be developed for reasons of safety.
11. Definition and relocation of the City limit lines between Belvedere and Tiburon has been under discussion with the intent to solve the remaining problems. Negotiations include the line through the Boardwalk Shopping Center, and resolution of the boundary of the Corinthian Yacht Club which has its clubhouse in Belvedere and its berths and parking area in Tiburon.
12. Opportunities to provide additional recreational facilities in Belvedere should be explored and encouraged. In particular, the existing lane and path system was surveyed in a 1986 study. (See Circulation Element).
13. A study of all remaining properties capable of being subdivided under present regulations should be undertaken with an analysis of the potential for additional development, geologic hazards, environmental impact, and other factors. If necessary, the zoning regulations and Subdivision Ordinance should be amended to change the conditions under which existing large lots may be divided and the amount of development to be permitted on such over-size lots.
14. Due to the close proximity of many homes in the Lagoon area, and the issues of privacy which this raises, consideration should be given to determining the feasibility of restricting the amount of second story building which can occur on each lot in the Lagoon area.
15. The City should revise its Zoning and Design Review Ordinances to reflect the results of the above studies and other concerns of the community, and to give the Planning Commission and City Council more specific standards by which to review proposed building projects.

B. CIRCULATION

1. City policy to keep the present road network intact, as shown on the Circulation Map, should be continued. The City should conduct traffic studies as needed to address safety considerations for all of Belvedere's





streets. Improvements to streets should be designed to improve the safety, sight distance, and parking conditions of the streets rather than to increase their capacity. Pedestrian circulation and safety should be an important consideration in determining what street improvements are made. Sidewalks should be encouraged.

2. Traffic generated by construction activities, tourists, and special events (such as Opening Day, fireworks displays in the Bay, etc.) should be discouraged from using Belvedere's street system. Alternatives for construction traffic should be studied, and specific regulations about such traffic and the parking of construction vehicles should be implemented.
3. As required by ordinance, off-street parking is to be created and maintained through the planning approval. The City shall encourage residents to provide additional off-street parking and shall require that the parking requirements of the Zoning Ordinance are met. Further, the City should require that the off-street parking spaces be continuously available for the parking of cars and not used for non-parking use, such as storage or workshop space. Tandem parking (end-to-end spaces) shall not be considered to fulfill the requirements for more than one of the required parking spaces. The City shall also encourage the creation of additional on-street parking where it is possible to do so, either within the right-of-way or partially on private properties.
4. Alternatives to the use of private cars should be explored jointly with Tiburon and/or the County for feasibility in Belvedere. The purpose would be to serve intra-city and intra-Tiburon Peninsula transit needs, including pickup and drop off at key transit exchange points such as the ferry and Alto Wye. The development of a local taxi system for the Tiburon Peninsula should be encouraged.
5. The pedestrian system of lanes and paths should be upgraded. West Shore Grade should be temporarily improved to provide for safe pedestrian use until it can be restored to full vehicle service.
6. The City should maintain all roads within the existing system in full service condition. If roads are damaged by slides or other disasters, they should be restored to full service as soon as possible. Two means of ingress and egress should be provided for every residence, except for very short cul-de-sacs.



C. HOUSING

1. The City shall maintain a reasonable rental stock, recognizing the need for such units to accommodate those preferring to rent or those unable to purchase homes in Belvedere.
2. The City shall make available information regarding City, County, State and Federal housing programs and advise and assist low and moderate income elderly living alone and elderly on fixed incomes having difficulty continuing to own and maintain their homes.
3. The City shall seek to maintain and expand the supply of affordable housing for low- and moderate-income persons.
4. The City shall assist in the provision of housing for public employees.
5. The City shall provide financial assistance where possible through City budget allocations, fee waivers, or cooperation with private fund raising activities to expand housing opportunities in Belvedere and the neighboring housing market areas.
6. The City shall encourage the incorporation of energy efficient systems in all housing to help reduce overall operating costs and to conserve energy.
7. The City shall encourage and support development proposals which provide new housing for low and moderate income households.
8. The City shall support fair housing practices and shall encourage housing opportunities for all persons to purchase or rent adequate housing, regardless of age, race, sex, marital status, ethnic background, source of income or other arbitrary factors.

D. OPEN SPACE

1. Views are to be preserved.
2. Open space should be secured by a variety of means, including purchase, dedication of land, development rights, and view easements or view corridors. Provisions for dedication were incorporated as part of Zoning Ordinance revisions.



3. Encroachment on open water should be limited to public trust purposes. At present, open water is protected by a combination of public ownership, Audubon Society and yacht club ownerships, recreation zoning, and Army Corps of Engineers and Bay Conservation and Development Commission (BCDC) jurisdiction. BCDC's San Francisco Bay Plan imposes such stringent limitations that it is unlikely development would be permitted on the few privately held open water lots. Additionally, the Richardson Bay Special Area Plan, adopted by the City in 1985, recommends against any development of open water areas. Zoning should be provided for these areas.
4. The scenic qualities of major circulation routes within the city should be enhanced.
5. All public and private actions that significantly affect the quality of the environment will be reviewed in accordance with the unique characteristics of each proposed action and each potential location under the specific mandatory procedures adopted. The responsibility for this review is delegated to the Planning Commission.

As mentioned in the Land Use Element policy section, considerations of view, of compatibility with the surrounding environment, and of intensity of site use are factors to be reviewed.

6. Areas prone to geologic hazards should be closely regulated, field investigation of hazards prior to development should be required, and the City should consider dedication of land as open space for safety reasons. However, liability and insurance considerations may limit the City's ability to accept dedication of such properties or to permit their development.
7. The City should cooperate with the Town of Tiburon in preserving open space in Tiburon which has a major visual impact on the views of residents of Belvedere. Further, efforts should be made to work with other neighboring communities in their efforts to preserve open areas which are visible from Belvedere.

#### E. ENVIRONMENTAL HAZARDS

1. Support public awareness of environmental hazards by actively advising citizens of the availability of local area hazard studies, sources of hazard information, and public services.





2. Continue to support scientific geologic investigations to refine, enlarge and improve the knowledge about active fault zones, areas of instability, severe ground shaking and similar hazards in Belvedere.
3. Construction shall be located and designed to avoid or minimize the hazards from earthquake, erosion, landslides, floods, and fire.
4. In the areas identified as subject to ground-shaking, the development of structures for human habitation, including residential and commercial uses, shall incorporate engineering measures to mitigate against risk to life safety, at least to the extent provided by the current Uniform Building Code adopted by the City of Belvedere.
5. Applications for developments or additions proposed to be sited on landslide deposits, non-engineered fill, or bay mud shall be accompanied by a geotechnical engineering investigation directed to the problem of ground shaking and ground failure. The engineering geologist and civil engineer shall submit recommendations regarding site development, structural engineering, drainage, etc.
6. Projects proposed for slopes rated 3 or 4 in stability classification (on maps prepared by the California Division of Mines and Geology) shall be evaluated for stability prior to consideration of site design or use. The evaluation should include the structural foundation engineering of the actual site and should include possible impact of the project on adjacent lands. Where, in the course of land development review, it is determined to be necessary, this evaluation shall also apply to remodeling and/or additions on existing single family lots.
7. In projects where such evaluations indicate that state-of-the-art measures can correct instability, the City should require that the foundation and earth work be supervised and certified by a geotechnical engineer, and where deemed necessary, by an engineering geologist.
8. Known landslides and landslide-prone deposits on steep slopes should not be used for development except where engineering and geologic site investigations indicate such sites are stable or can be made stable providing appropriate mitigating measures are taken. In such cases, it must be shown to the satisfaction of the City that the risk to persons or property or public



liability can be minimized to a degree acceptable to the City.

9. Filled land which is underlain by compressible materials (bay mud, marsh, slough) should receive special attention during site planning. Soils investigations should include borings and sufficient examination to determine the location of former sloughs and other factors which would accentuate differential settlement. And, the investigation should delineate those areas where settlement will be greatest, subsidence will occur, etc., and should recommend the site preparation techniques which could be employed to preclude hazard.
10. The City's program of systematic lot and eucalyptus cleanup should be stepped up. The program works as follows: the owner is informed his property constitutes a fire hazard and is given a time limit to clean it up. If he fails to do so, the City cleans up the lot and assesses the owner.
11. The Planning Commission, with the building inspector and fire chief, should periodically review the building code to ensure maximum reasonable fire hazard protection.
12. All plans for development of vacant sites and major remodeling shall be referred to the Tiburon Fire Protection District for review and recommendations.
13. To assure emergency and public service vehicular access in places where 10 foot road width is critical, vehicles which overhang those limits shall be cited.

#### F. NOISE

1. Belvedere shall consider development of a comprehensive noise ordinance regulating the hours and days of construction activity, limiting the use of yard/garden and construction equipment which generates significant noise, and regulating amplified sound systems used outdoors, and other noise sources considered objectionable by the community.



## TECHNICAL APPENDIX ENVIRONMENTAL HAZARDS ELEMENT

Landslides are not random--they occur in certain areas for specific and relatively predictable reasons, and not in other areas. Their likelihood should be accounted for in land use planning and in site development. Landslides and swelling soils constitute the principal geologic hazards to structures, roads and utilities in the uplands of Belvedere. Both are widely but unevenly distributed in the area, and both are related to the bedrock geology and the surface soils and colluvium derived by weathering of the bedrock.

The hills and ridges of eastern Marin sharply differ from place to place in the strength and relative stability of the rock formations and other geologic materials that underlie the surface. Even without knowing the identity of the underlying materials, these differences in strength and stability can generally be inferred by the presence, absence, or relative abundance of landslides on the various slopes. Where landslides are abundant, the slopes are likely to be inherently unstable; where landslides are few or lacking on the steep slopes, the slopes are relative stable. Even in those areas where very steep natural slopes have relatively few landslides, indiscriminate deep cuts, both for streets and house sites, can be expected to cause some serious and long-term problems. Adversely dipping fractures and bedding planes that are a part of the structure of the underlying rock may become planes of movement when undercut.

Landslide deposits are widely but unequally distributed. These surficial deposits of rock or soil materials have separated from their original position on slopes and have moved downslope under the influence of gravity. They exhibit characteristic topographic expressions that result from the downward and outward displacement of the landslide masses. Prominent topographic features that commonly develop in landsliding include scarps, terracelike benches that commonly have topographic sags or depressions on them, hummocky or disrupted ground surfaces, and anomalous drainage patterns.

Most landslide deposits in Marin County are debris flows, but many or most of these are composite in their development. Typically such landslides originate as rotational slumps, but disintegrate with further movement into debris flows. On unstable slopes many such landslides commonly merge to form aprons of these deposits in which individual landslides are difficult or impossible to distinguish.

Where their topographic expressions have been modified or masked by erosion, forest cover, or grading operations, most landslide





deposits can be identified from exposures in gullys, road cuts, or other excavations. This is because they are typically composed of chaotic mixtures of angular rock fragments, of various sizes and orientations, that are embedded in an unconsolidated, fine grained, clay-rich matrix. One type of landslide, the debris avalanche, leaves a scar behind as the only evidence of its occurrence that can be recognized a year or more after the event. The source of this type of fast moving landslide is limited to the regolith (soil and colluvium), never bedrock, and the avalanche mass is so fluid that it flows to the base of the slope, or beyond, and spreads out as a thin coating of mud over the surface.

A typical soil debris avalanche involves a few hundred cubic yards of soil and colluvium and is the result of total saturation of a part of the regolith on a hillside. In general, it occurs only in sandy and silty soil that has little clay content. Such soils form principally on sandstone. During the last 20 years, they have occurred abundantly in Marin County when about 4 inches or more of rain has fallen in 10 hours or less. In some areas, however, they have occurred during normal rainfall as a result of excessive water introduced into the susceptible hillsides by domestic water use. Houses have suffered damage or destruction from these avalanches both by being struck by the fast moving flows and by being undermined because foundations were embedded in the soil that liquified, rather than in the bedrock beneath the soil.

Important elements in the determination of the potential stability of a landslide deposit include its position on the slope, the angle of the slope, and the state of consolidation and other physical characteristics of the deposit. Though introduced from time to time as evidence of relatively higher stability of landslide deposits, old age, apparent or actual, has little significance regarding the potential stability of such deposits.

Most landslide damage in Belvedere has probably taken place within pre-existing landslide deposits as a result of continuing or renewed movement within them. The great majority of these damaging landslides are soil and rock debris flows developed on slopes underlain by Franciscan melange. Their heaving soils and slow downslope movements strain houses by cracking foundations, and crack and disrupt streets and utilities. Most of the landslide deposits that show on our maps are of this type.

Soils that swell when wet and shrink when dry also cause considerable damage to structures, streets, and some areas of Belvedere. These soils are clay-rich, composed largely of montmorillonite, an expansive clay mineral. These soils form in areas underlain by Franciscan melange where the fine-grained matrix of that unit is abundant. Such soils are dark gray in most places. In late summer they exhibit wide desiccation cracks



(1 to 3 inches wide in many places), and at this time the soil is literally rock hard. Swelling of the clay minerals closes the cracks in the wet season, and the soil then is plastic and very weak. The forces exerted during expansion and contraction are sufficient to heave and distort buildings, and to crack shallow foundations and pavements. Such soils should be recognized prior to construction, and special engineering methods used to help reduce the stresses on buildings. The expansion-contraction characteristic of these soils causes slow downslope creep of the surface where they lie on a slope, thus adding to their potential for disruption of structures and facilities. These soils are abundant in most landslide deposits that lie on melange slopes and are the principal reason for the inherent instability of such slope deposits.

Developments on fill placed upon the marshlands and mud flats of San Francisco Bay are susceptible to several severe types of stability problems. Such developments have been the cause of distress to individual citizens, and public expense for many years. This is primarily because the continuing subsidence of fill results in intermittent flooding of residential neighborhoods, and because differential settlement of fill damages structures, utilities, and roadways.

The bay mud that underlies marshlands and mud flats (and many existing developments on fills placed upon such lands) is an unconsolidated, jelly-like material that is both highly compressible and subject to lateral flow when loads are placed on it.

Slope stability on greenstone and sandstone is high, except where it has been heavily altered or sheared. Since Belvedere is urbanized, the net effect on slide development is difficult to determine. Non-engineered or improperly engineered cuts usually reduce the stability of that slope and may possibly reactivate an old slide, or develop new ones. Other aspects of urbanization, such as the paving of streets, construction of many houses, installation of storm drains, and planting of trees and shrubs, may have the opposite effect by increasing the amount of rainfall necessary to saturate a large area of ground and by stabilizing the uppermost portions of the soil. Available information suggests there may be some slope stability problems in the rock areas where there are slope debris of landslide deposits. Severe winter storms in 1982, 1983 and 1986 triggered significant landslides, closing West Shore Road, near its southeastern end, and Beach Road. A list of these slides is maintained by the City Engineer. A total of 48 reported slides occurred in 1982-1983.

Slope stability of the quaternary deposits along lower Beach Road and San Rafael Avenue is considered moderate. On the areas filled over bay mud, it is considered low.





The greatest Bay Area earthquake about which detailed quantitative information has been established is the April 18, 1906 shock on the San Andreas fault, which has traditionally been rated at 8.25 magnitude on the Richter scale. This would be the key seismic point of historical reference for Marin in any event, but the more so since its epicenter was located in the vicinity of Olema in western Marin.

San Francisco suffered well known spectacular property damage and some 450 direct or indirect deaths from that earthquake, while Santa Rosa and other more built-up urban areas also experienced substantial property losses to a lesser extent. Marin, being sparsely inhabited, experienced relatively moderate property losses and only two deaths.

Damage in Belvedere was characteristically from fallen chimneys and cracked walls. The 1906 earthquake was the last significant seismic event with its epicenter located in Marin or which produced significant damage or ground movement phenomena in Marin, although minor effects of moderate Bay Area shocks epicentered elsewhere were felt in parts of Marin.

In terms of human and economic losses, seismic shaking is the most significant factor contributing to the overall earthquake hazard. Shaking contributes to losses not only directly through vibratory damage to man-made structures but also indirectly through triggering of secondary effects such as landslides or other modes of ground failure. This, an important element in attempting to classify areas by seismic risk, is the geographical assessment of potential ground shaking.

Belvedere experienced its greatest ground shaking damage in the 1906 earthquake, which, unlike the damage resulting directly from ground displacement, was prevalent in eastern Marin as well as along the San Andreas fault zone in the west.

The post-1906 moderate Bay Area earthquakes with epicenters elsewhere were felt in Marin, but with maximum intensities (modified Mercalli) of only V or VI and usually very slight damage. The strongest shaking effects experienced since 1906 were localized reports of intensities V and VI during the March 1957 Daly City earthquake (Richter magnitude 5.3). In that shock, a few instances of moderate damage were reported in Sausalito, Mill Valley and San Anselmo, but most reports were of slight damage, or of strongly felt motion and loud sounds frightening residents. To convey a fuller picture of what this and other seismic events felt like in Marin, excerpts from the U.S. Coast and Geodetic Survey Abstracts of Earthquake Reports should be consulted.

Fire is also likely to be a destructive by-product of a great earthquake in this area--perhaps by far the worst if the earthquake occurs during the dry season. Fire was the significant source of property damage in the 1906 earthquake. It





should be expected that many fires would be ignited from a major or great earthquake. These fires would probably be caused by gas appliance pilot flames which would ignite the gas escaping from ruptured pipes, especially from topheavy water heaters which could come loose from their pipe connections.

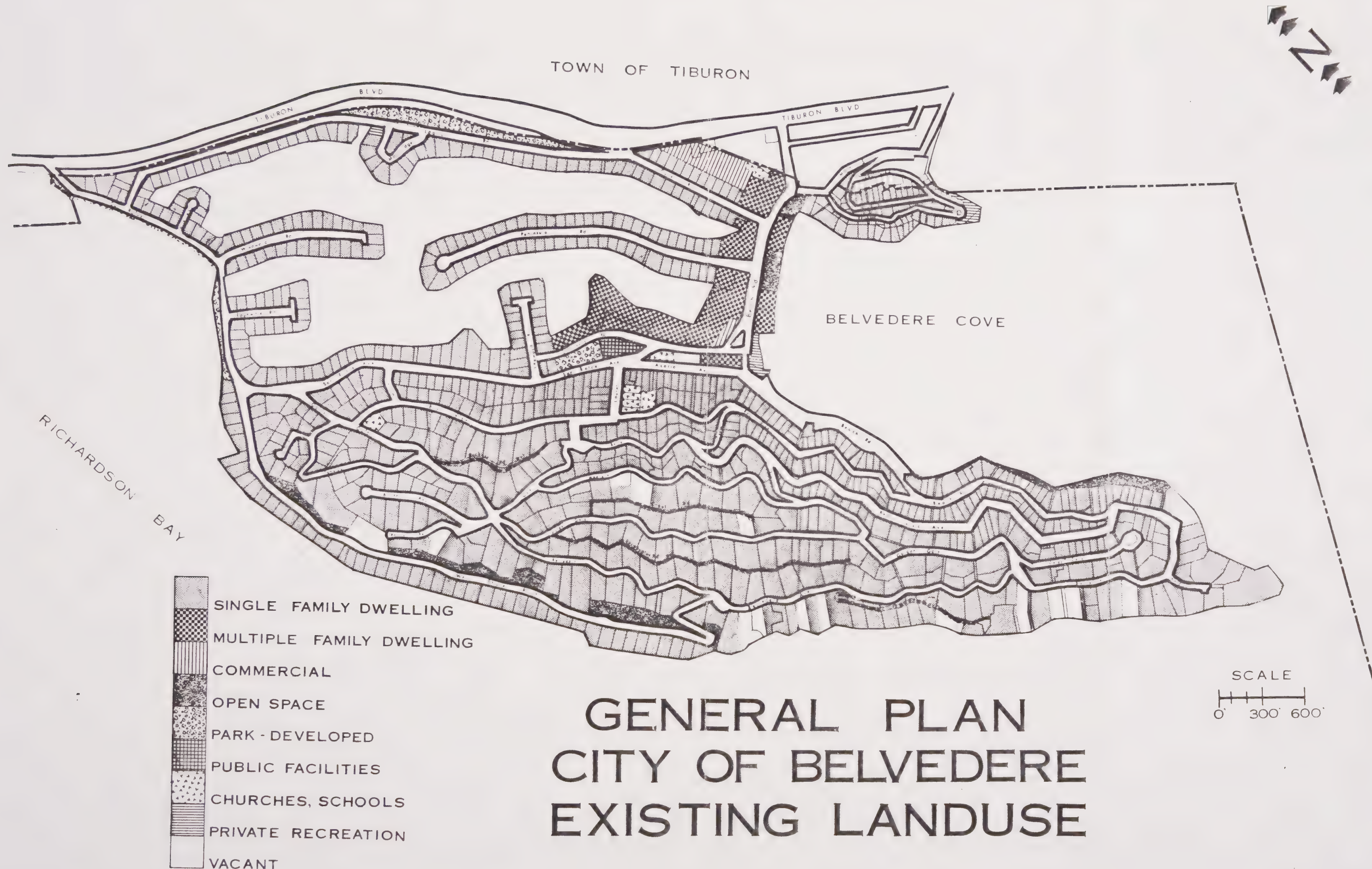
The rock portions of Belvedere and Corinthian Islands are likely to be relatively safe during an earthquake since damage from ground shaking has been minimal in areas of similar geology. Surface faulting is unlikely since Belvedere lies between the two main active faults in the Bay Area: the Hayward Fault to the east, the San Andreas Fault to the west.

In the Lagoon area, seismic risks do exist in several forms: first, earthquake ground motion may be amplified in the unconsolidated, water-saturated sediments underlying the lagoon's housing pads. Second, subsidence is also possible, although because of the homogenous nature of the fill, such settling would be more likely to be evenly distributed than differential. Third, there may be a danger from tsunami, that is an earthquake-generated wave, from some far distant source.<sup>1</sup> This danger also extends to other low-lying areas in the city.

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1. Tsunamis are large ocean waves generated by rapid changes in elevation of large masses of earth and ocean, such as occurs with vertical faulting beneath the ocean.



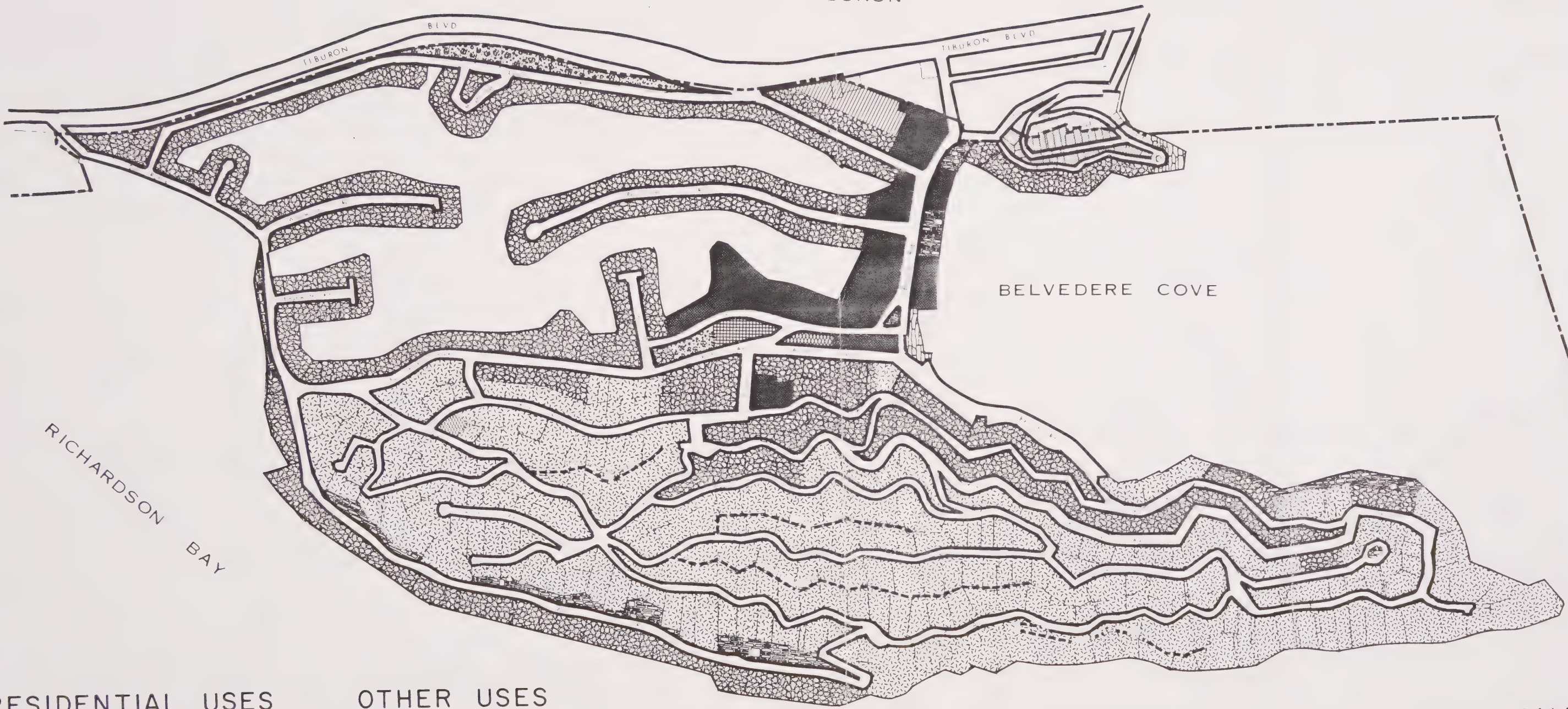








TOWN OF TIBURON



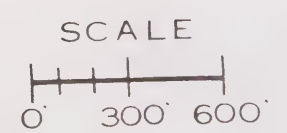
RESIDENTIAL USES  
(density in units per acre)

- Low 1-2.5 units
- Medium 2.5-5 units
- High over 5 units
- Multi-Family 5-20 units

OTHER USES

- Commercial
- Open Space
- Park
- Public Facility
- Church or School
- Private Recreation

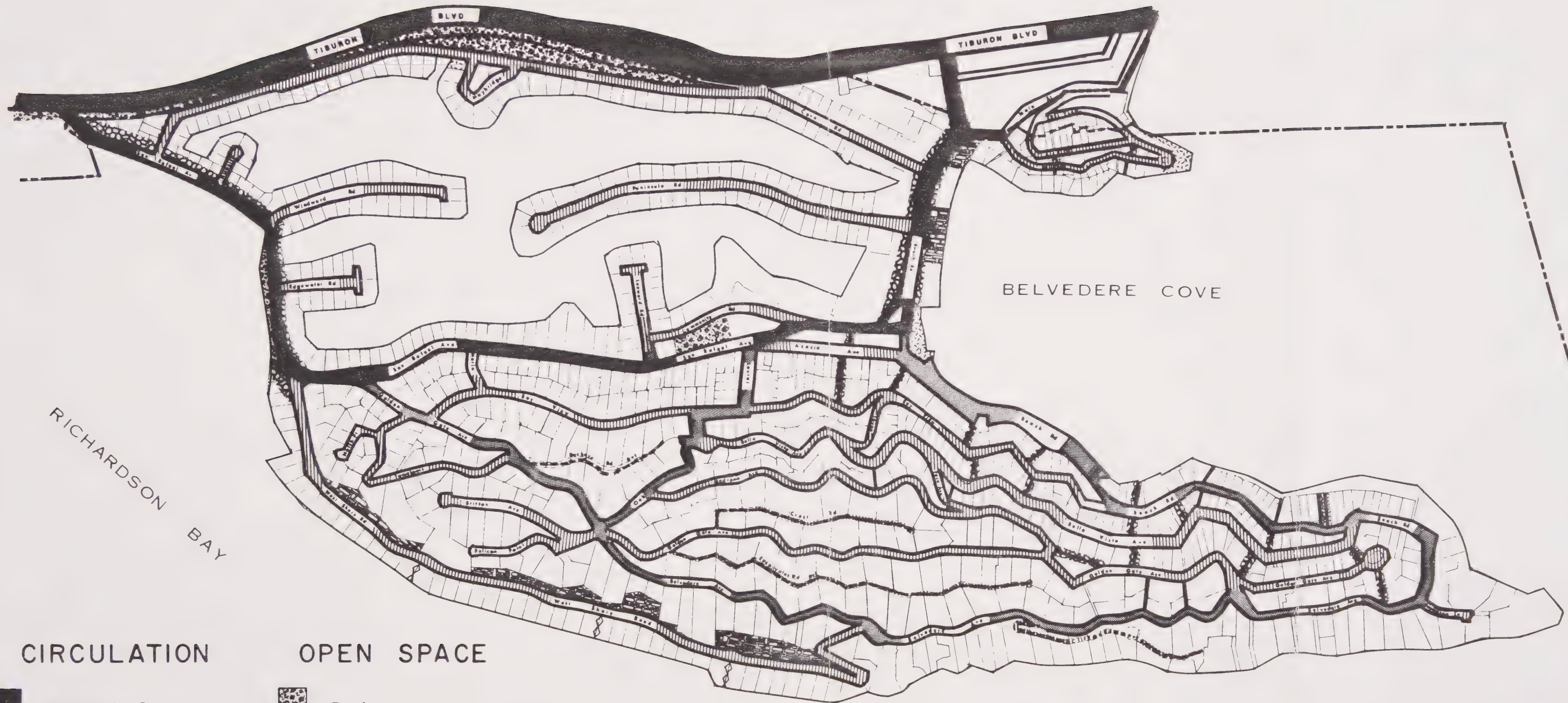
# GENERAL PLAN CITY OF BELVEDERE FUTURE LANDUSE







TOWN OF TIBURON



### CIRCULATION

- Arterial Street
- Collector Street
- Neighborhood Street
- Improved Lane
- Unimproved Lane
- Bicycle Path

### OPEN SPACE

- Park
- Open Space
- Private Recreation
- Scenic Corridor
- Visual Easement

# GENERAL PLAN CITY OF BELVEDERE





BELVEDERE GENERAL PLAN STUDY ROSTER

City Council:

Robert K. Gordon, Mayor  
Erwin Farley, Vice-Mayor  
Richard E. Boesel, Jr.  
Erin Findlay  
Douglas L. Jocelyn, Jr.

Planning Commission: (through May 1987)

Frederick E. Emmons, Chairman  
Daniel B. Gale, Vice-Chairman  
James Berg  
Melanie Maier  
Ann Otter  
John Pearson

City Attorney:

Gary T. Ragghianti

Consultants:

McCart, Treais & Company, Inc.

Martha McCart  
Lyn Treais

Foley & Associates

Michael Foley



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